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MARCH 1955

FIREMEN

FIFTY-NINTH YEAR · NATIONAL FIRE PROTECTION ASSOCIATION

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VERSATILITY

IS THE KEYNOTE

OF THIS

American

FIRE TRUCK

IN ACTION, it's more versatile because it's *designed* to meet *more* different situations and fight *more* types of fires more effectively than ordinary trucks. For example, this truck will draw water from hydrants, ponds, streams, cisterns or stock-watering tanks. In addition, it carries its own water supply for fire-fighting effectiveness when other sources are not available—and for fighting running grass fires *on the move!*

Equipment consists of ladders, extinguishers, two reels, 300 feet of booster hose, Barton Super-Fog guns; in fact, all accessories to meet the requirements of the National Board of Fire Underwriters.

The Barton-American Type UA Front-mounted Pump features proved, effective frost-proof construction and *exclusive* combination friction and positive interlocking clutch mechanism *not* available on any other pump. Front pump location results in better balance on the road and *extra* body capacity for water or equipment.

For complete information, contact your nearest representative. American Fire Apparatus is built in Battle Creek, Michigan, and Marshalltown, Iowa.

Midship pump models also available.

American

FIRE APPARATUS CO.

BATTLE CREEK, MICHIGAN • MARSHALLTOWN, IOWA

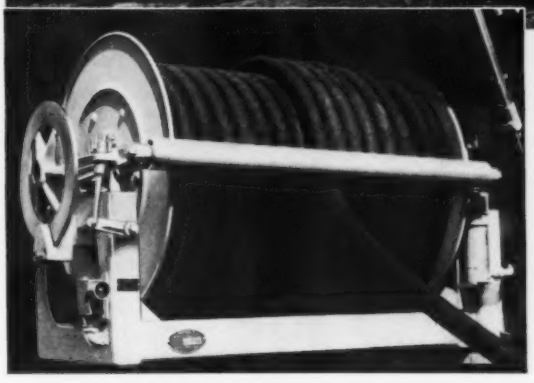
Main Office: Main St. Road, Battle Creek, Mich.

"Always Pioneering with Better Engineering."

Designed for Emergencies

DEPENDABLE HANNAY HOSE REELS

U.S. Air Force photograph



Designed and built by firemen for firemen, HANNAY Hose Reels are functionally correct in every detail of construction . . . always dependable in any emergency! That is why both civilian and military fire chiefs insist on HANNAY.

When you need dependable hose reels, either for standard or special applications, always specify HANNAY . . . built to do a better job in fire fighting, in industry, in national defense.

HANNAY Electric Drive HOSE REELS WATER and VAPOR RESISTANT • EXPLOSION-PROOF

Sealed against foam, fog, fumes and water, the explosion-proof rewind motor has sealed push-button control . . . no gears to shift, no clutch to engage. Hose Reels like this one, custom-built by HANNAY for military service, are standard equipment on the new American LaFrance Foamite Corp. Crash Truck shown here. This HANNAY Hose Reel is shown above in use, as Air Force Fire Fighters spray foam on burning aircraft. They, too, depend on HANNAY in emergencies!

HANNAY
REG. U.S. PAT. OFF.
HOSE REELS
CLIFFORD B. HANNAY & SON, Inc.
WESTERLO, NEW YORK

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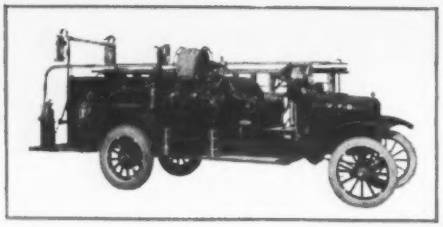


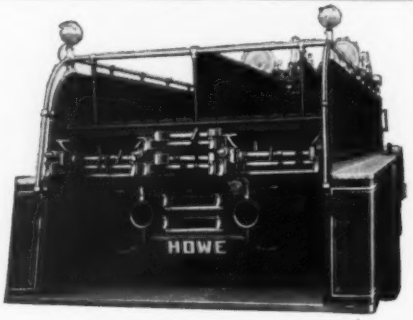
THEN and now it's HOWE

Finest in fire-fighting apparatus for four generations

THERE'S an affinity between the early and modern HOWE pumpers above. Each can be termed the complete fire fighter of its day —complete with pump, hose, tank and ladders. The early one dates from 1923, but HOWE produced its first automobile pumper in 1908, the result of experiments begun in the pioneer days of motors.

HOWE LEADERSHIP

B.J.C. Howe, who founded the company in 1872, obtained patents on the first horse-operated fire department type piston pump ever built. Keeping up the tradition he established, HOWE was first to combine a volume pump and a high-pressure fog power take-off pump. Always in a HOWE pumper you may specify the latest and best in equipment, on a custom-built HOWE Defender chassis or a commercial chassis. You will have exclusive features like the HOWE automatic pump prime indicator and special HOWE construction which makes a pumper perform better and last longer. Look to HOWE for the finest in fire-fighting apparatus.



Rear view of quadruple combination unit on HOWE Defender chassis for Vinton, Ia. Truck has 750 GPM pump, 200-Gal. Booster Tank, two 40′ 3-section ladders, three 28′ 2-section ladders, one 16′ roof ladder, one 14′ roof ladder, one 10′ folding ladder, 6 pike poles. All ladders and equipment are mounted in enclosing compartments. Also nine large compartments to house portable pumps and other items. Truly a fire truck to save time, manpower and property!

HOWE

HOWE

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INDIAN

FIRE PUMPS do a sweet job!

A picture of perfection — that's what users say about **INDIAN FIRE PUMPS** in action. These famous back pack extinguishers have made a name for themselves that can never be equalled. **INDIANS** are the *original*, foremost clear water extinguishers — nothing else is "just as good."

Our company dates back to 1888 and all of the "know-how", skill and research of sixty-seven years has been built into Smith products.

INDIAN FIRE PUMPS bear the approval of the Underwriters' Laboratories. Easily filled, easily carried, easily operated, **INDIANS** are the "choice for quality the world over."

When only THE BEST is good enough — you want **INDIAN FIRE PUMPS!**

The INDIAN is available in the lever type, known as our No. 80 INDIAN.

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No. 80 (Lever Type Pump)

Same size as No. 90 Indian Sliding Pump type. 5 gal. tank available in Armco zinc grip steel or solid copper. High pressure. Continuous action. Working pump handle slowly throws powerful stream or fog-spray, as desired.

Established 1888

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"**INDIAN FIRE PUMPS** should be standard equipment on every piece of fire apparatus."
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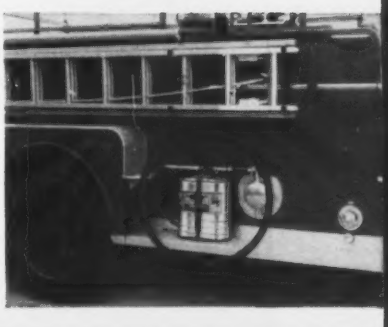
"We have used **INDIAN FIRE PUMPS** for many years. They are indispensable."
CHIEF RAY H. EARLE, Massillon, Ohio

"I recommend **INDIAN FIRE PUMPS** very highly. No equipment is complete without them."
AUBREY G. ROBINSON,
State Fire Marshall, Concord, N. H.



Showing **INDIAN FIRE PUMP** mounted on truck delivered to Brentwood Fire District, Brentwood, N. Y. Truck built by Seagrave Corp., Columbus, O.

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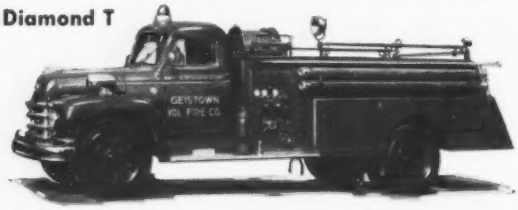

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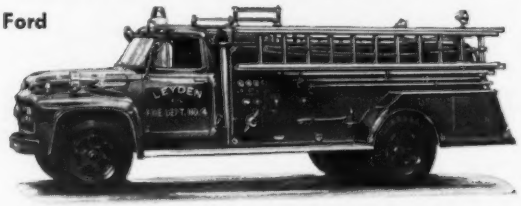

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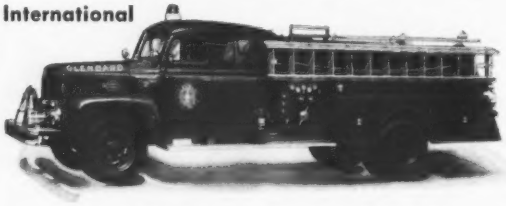

750 Gallon Pumper with 6 Man Cab

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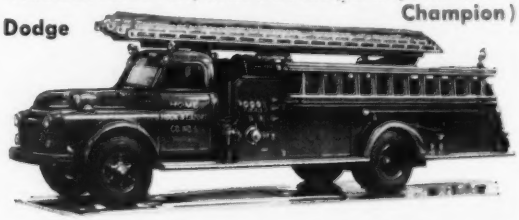

500 GPM Pumper with 50 Foot Power Aerial

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Write for Fire Equipment Catalog and New 1954 Fire Apparatus Booklet

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FIRE HOSE COUPLINGS

Strong

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A DROP FORGED COUPLING ENGINEERED TO HIGH PRESSURE LIGHTWEIGHT AND STANDARD FIRE HOSE SPECIFICATIONS

What are the requirements of an ideal fire hose coupling? We set out to find the answers to that question by asking fire chiefs and fire hose manufacturers.

Those answers are now built into the new Manga-Forge Coupling after nearly two years of development and exhaustive testing. This coupling more than meets all the requirements of the latest developments in lightweight, heavy duty and standard fire hose by combining the strength of forged manganese with ring reinforcement in the expansion area. The Manga-Forge Coupling is structurally engineered for maximum strength and safety with minimum weight. Design features prevent this coupling from going "out of round" under impact and stress. It will not slip, creep, or blow off at any fire pump pressure.

You can depend on Manga - Forge Fire Hose Couplings to give you better service and longer service. Specify them on all new hose orders.

FOR GREATER STRENGTH

Forged from a special manganese - bronze alloy for strength, durability and corrosion resistance. Extra heavy in the expansion area with a reinforcing ring added in the middle of the hose bowl.

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Lighter than ordinary couplings. Weight is reduced to a minimum for easiest handling, yet structural design gives this coupling a wide margin of strength to sustain shock, stress and impact.

FOR ADDED PROTECTION

Reinforcing ring protects those parts of the coupling most susceptible to damage — the threads and the swivel when hose is either coupled or uncoupled.

COUPLING DESCRIPTION FOR INCLUDING IN YOUR HOSE SPECIFICATIONS

Couplings to be forged from a manganese-bronze alloy, with reinforcing rings located at the mid-section of the hose bowls. Three rocker-type lugs on the male and swivel with Higbee indicator.

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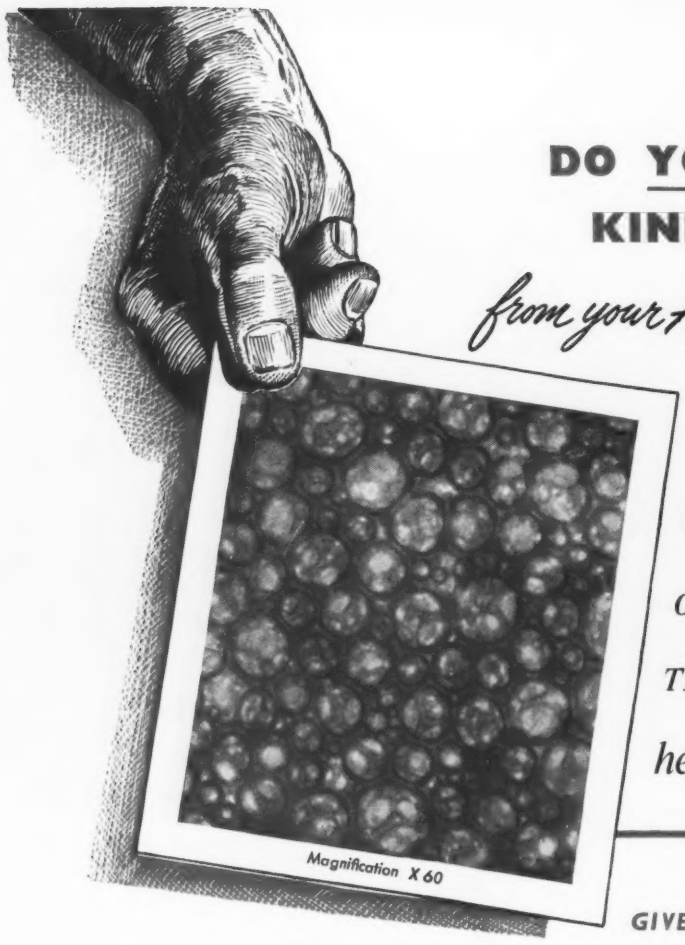

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THE LONGER LASTING AIR FOAM

Keeps longer in storage—Puts out more Fire Faster
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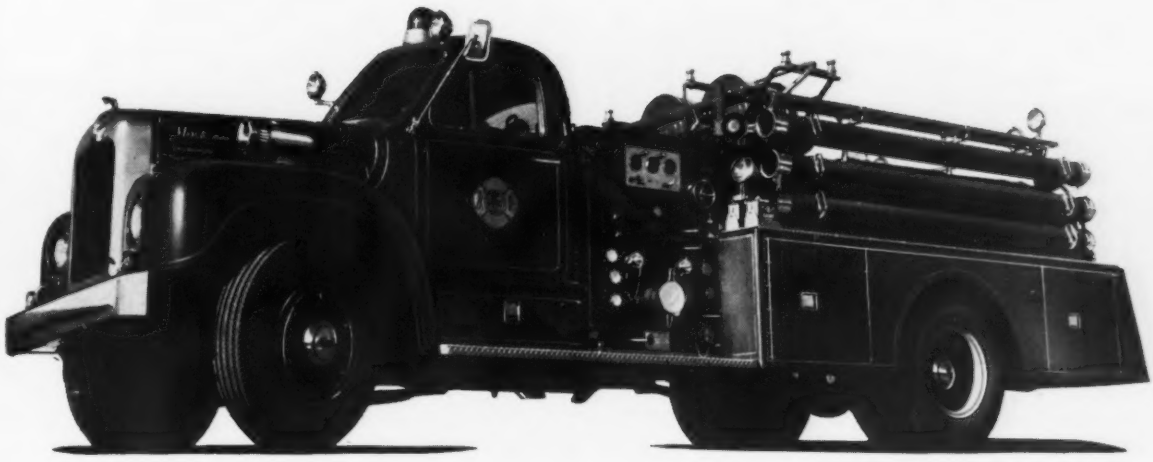
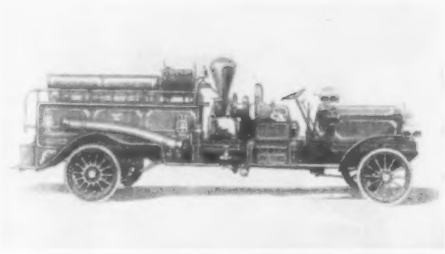
BRITISH FIRE EXTINGUISHERS LTD., 222 SIMCOE ST., TORONTO 2B, ONT., CANADA

built to STAY... and STAY AHEAD



year after year after year



The first Mack fire apparatus answered the bell way back in 1910. A lot of water has passed through the hose since then—but one thing is certain—today, as then—Mack can be counted on for continued leadership in progressive fire engineering.

Today's Mack Fire Apparatus, the all-new "B" line, represents a substantial Mack investment in the future. It emphasizes Mack's pledge to the fire-fighting services to constantly anticipate the requirements of tomorrow—in terms of the most modern fire apparatus built.

We'll be glad to have a Mack representative show you why these all-new Macks have won such instant and widespread popularity. He'll show you, too, how these completely redesigned apparatus will put your department years ahead . . . in styling of which you can be proud . . . in performance that will never let you down.

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Triple Combination Pumpers—500 to 1250 GPM • Squad and Hose Wagons • 65′, 75′, and 85′ Aerials • Combination Ladder Trucks

Announcing... THE SEAGRAVE COMMERCIAL AERIAL LADDER

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The history of Seagrave has been a long line of firsts in fire apparatus design and construction, among which was the first all-steel aerial ladder in America. Seagrave again demonstrates its leadership by producing a 65-foot all-steel aerial ladder mounted on a heavy-duty commercial truck chassis of your own choosing. This fills the urgent need for an aerial ladder at an economical price. Now smaller cities, volunteer fire departments and industrial fire services can have a Seagrave All-Steel Aerial Ladder truck with a completely new one-hundred percent hydraulic hoisting mechanism and ladder. All operations in the Standard Seagrave Aerial Ladder have been incorporated in this new design. This aerial ladder, hoisting mechanism and body are all Seagrave and built in the Seagrave factory making possible the greatly reduced price. You will want to learn more about the most economically priced aerial ladder in the fire apparatus industry.

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COLUMBUS, OHIO

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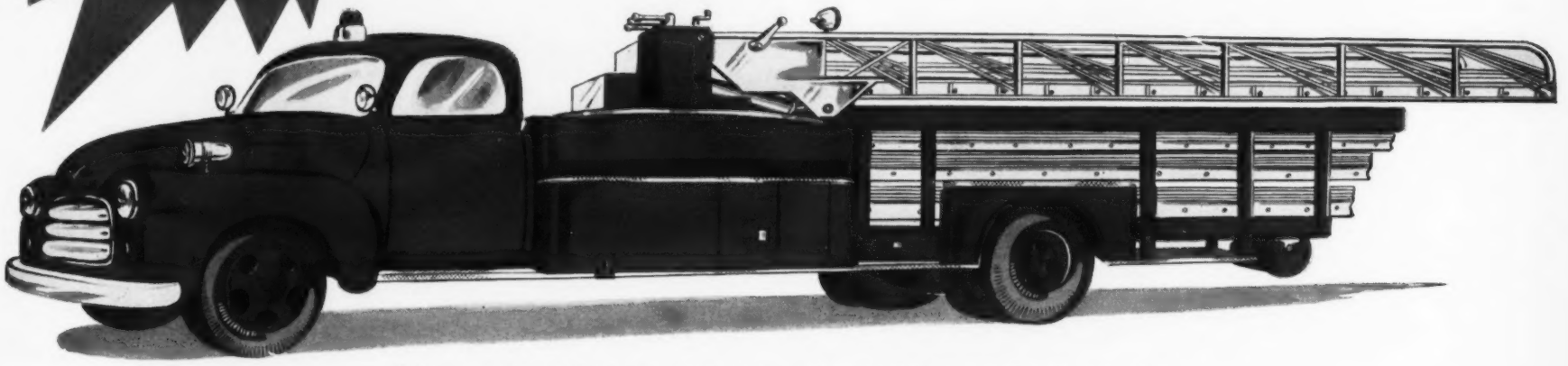

THE GREATEST NAME IN FIRE APPARATUS

Firemen

Volume 22 — Number 3

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Published monthly for the fire service members of the
NATIONAL FIRE PROTECTION ASSOCIATION

A VOLUNTARY NON-PROFIT ORGANIZATION
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Cover Picture

Within two days three communities in Pennsylvania and Massachusetts suffered heavy loss when fire involved a number of buildings in their mercantile districts. On February 4, Shenandoah and Carbondale, Pennsylvania, (page 18) were victims. Salem, Massachusetts, (page 18) fire fighters had their workout the following day.

The Shenandoah fire (cover picture — *United Press Photo*) spread through 11 stores and apartment buildings and 30 dwellings on the west side of South Main Street, with a resultant fire loss estimated at more than one million dollars. The other two fires were also well up in the "large loss" category.

In the "downtown" sections of many of our cities the structural deficiencies and close exposures of aged buildings can lead to similar fire experiences. There is no estimating what the potential and actual frequency of such large loss fires could be, were it not for vigilant inspection and fire prevention activities by fire department members. Neither can the effect of modern fire apparatus, equipment, and techniques used by well-trained fire fighters be gauged, although the combination of these three elements is a major factor in preventing much more devastating fire spread.

In the actual fire fighting, however, cold weather can be an important deterrent of success. Despite careful pre-planning of building conditions, water supply, and response, severe cold can wreak havoc with what normally might be a smooth fire fighting operation. Freezing conditions mean that fire fighters will be slipping and falling, that lines may be dropped or moved much more slowly than expected by the fire officers, that equipment and apparatus will be ice covered and perhaps be useless at a critical moment, and that supporting apparatus and men may not arrive when expected.

Each of these intangibles has considerable effect on the length of time it takes to control a fire. Each may mean the difference between a fire being held to one building, or spreading to involve more. Each, perhaps, makes the chief in command somewhat wistfully think that his boys would have held the blaze to a "nubbins", if only the fire had started in the Spring. Which, by the way, is practically here. (See below.)

Spring Clean-Up

New kits of Spring Clean-Up materials have been prepared by NFPA and with the cooperation of the International Association of Fire Chiefs special mailing will be made to fire chiefs throughout the United States and Canada. The back cover of this issue describes the posters, stickers and other display pieces which will help your fire department participate in this continent-covering fire prevention action. You can use the easy order blank or write to the NFPA for the quantities you need in your community, to flag the attention of citizens to the important fundamental of cleaning up their properties for fire safety.

A Word of Caution

A few months ago a volunteer fire chief was killed during a public fire fighting demonstration, in the Midwest. A wooden shack, filled with gasoline soaked lumber, rubber tires and other combustibles was to be ignited so that the volunteers could complete extinguishment in approved fashion. As the 500 spectators were informed by a public address system that the demonstration was starting, one of the volunteers lighted a match and threw it into the shack. A severe blast hurled the tires and lumber through the air, and one fragment struck the chief on the head. He was dead on arrival at the hospital.

The 1955 training season for fire fighters is about to start. There will be many shacks burned and there will be many training demonstrations involving flammable liquids. This unfortunate occurence should serve to remind responsible personnel that the best fire fighting techniques demand respect for what fire can do and how it behaves. There will be no "loss of face" if such fires are started by a fuse, or electric spark — from a safe distance.

"The Community Dump"

Useful booklet offers some recommendations for proper dump control.

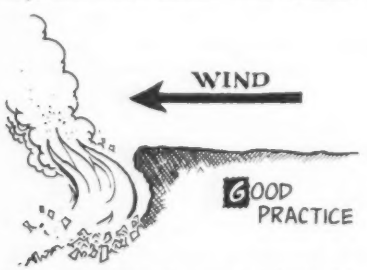
SOME of the most bothersome chores for fire departments develop when fire occurs in the community dump, or spreads from such areas because of poor supervision. Fire fighters responding to dump areas often have to cope with very bad smoke conditions and strenuous hours of overhauling before control is established. In addition, dump fires represent a tangible financial loss to each community.

A good analysis of the problem and some constructive suggestions for establishing and controlling community dumps are described in a booklet published by the Forestry and Recreation Department in Concord, N. H., represented by State Forester W. H. Messeck, Jr. The 24-page, 6 x 9 in., illustrated booklet has some practical recommendations which many fire departments may want to encourage as standard procedure for dumping areas in their own communities. The booklet was prepared after a survey had been made by Sargent Goodhue, Merton E. Webber and Thomas J. King — all District Fire Chiefs of the New Hampshire Forestry Department.

One feature of their report concerns the cost of fire department service required for controlling and extinguishing dump fires. A spot check of dumps was made in 1952, in 46 New Hampshire towns. The survey revealed that local fire departments made 901 runs to the dumps over a period of three years, (averaging 7 runs per dump per year) for the purpose of reducing fires and preventing fire spread to adjacent wood lands. The committee found that the average expense amounted to $25.14 for each run.

During the same period 52 fires escaped from 26 dumps resulting in a total cost of $30,246.07 to the towns concerned, or an average of $581.65 per fire. All of the dumps involved in these fires did not have temporary or permanent attendants to supervise distribution of rubbish and burning of litter.

Some of the recommendations of the committee are outlined below:



Some control of burning may be obtained by taking advantage of prevailing winds. Lip of bank protects burning litter. With properly placed logs and fences attendant can keep good control of rubbish distribution.

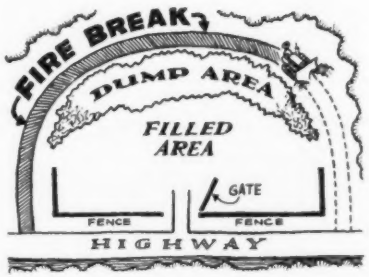
Availability

For any community the dump or dumps should be located where the highest percentage of population will find the site easily available. Yet, it should be situated some distance from any main highway or populated district to avoid unsightliness, to reduce hazards and to minimize objections of the citizens to smoke odors, insects, and rodents which habituate dump areas.

The size of the dump area should be gauged by its expected usage. As reported in the booklet there has been a tendency in recent years to a continued increase in the volume of waste material. Papers and other litter, which formerly were burned in home furnaces, must now be destroyed in a public incinerator or sent to a community dump. Hence, every community should make provision for expanding its dump areas in years to come.

Fire departments also should be particularly concerned about the exposure problems created by dumps. While it is essential that such materials be burned or buried, there are protective measures which can be recommended or supervised by fire department personnel in order to minimize the number of "runs."

For example, dump burning should not be exposed to the path of prevailing fair weather winds. Open-face bank type dumps, when burning, can create a strong up-draft, allowing the prevailing winds to blow burning papers and litter considerable distances. Consequently, as the illustration on this page shows, the most desirable exposure is opposite to the prevailing wind so that the lip of the bank will protect the burning material from being scattered by the wind.



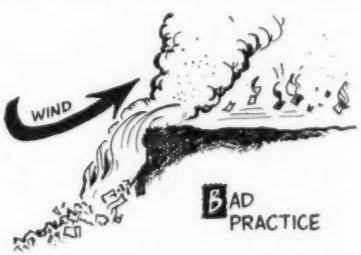
Fundamental layout of dump includes controlled land-filling and fire breaks. Traffic can be controlled by attendant if good fencing is used. Logs at lip of bank also provide for better disposal.

Preparing Dump Areas

If the dump site is in the wooded territory vegetative growth at the dumping area should be cleared for at least a few rods in all directions. Trees bordering this cleared section may be left standing to serve as a windbreak, but they should be pruned up to at least 10 ft. from ground level.

Fire breaks should be established all around the dump area. These may be natural breaks such as roadways or swampy areas, or else they may be fire lines "bulldozed" or dug to mineral soil. For best protection such fire lines should be 4 to 8 feet in width.

Water supply should be available for use in fire control. If no stream or pond is near the dump area, cisterns can be constructed, or small amounts of water can be kept in tanks or barrels at strategic points around the dump area. Such water supplies would also be useful



The weather man in your vicinity can give you accurate data on the direction of prevailing winds, and thus help you avoid this situation of an open-face fire about to spread to serious size.

in enabling the attendant to burn the litter safely, using the water to reduce the intensity of the fire. The attendant also should be equipped with the necessary tools such as pitch forks, rakes, shovels, axes, back-pack pumps and water pails to control any fire spread.

Most communities make some provision for dump supervision. It is best, of course, to have an attendant on duty at all times where dumping is allowed. To minimize the seriousness of dump fires, the attendant should burn small amounts of the combustible material at frequent intervals. When properly attended, such burning not only allows easy control of the fire but also minimizes smoke conditions and disposes of material which would attract insects and rodents.

Good dump regulation would also provide for directing waste materials to proper areas for burning or covering. For example, brush, combustible litter, and garbage should be disposed in three separate areas. This can be achieved simply by providing a fence or other form of blockade to regulate the traffic flow into the dump area. Fences are also useful for preventing lightweight material from being scattered by the wind.

Burning of combustible litter has been found to be more economical than any other method. Covering dump materials with gravel usually calls for the use of a bulldozer, in addition to a sizable gravel supply. This method not only can be expensive but in time rapidly uses up the space for dumping.

Readers interested in obtaining copies of "The Community Dump", or further information, may write to State Forester W. H. Messeck, Jr., or to Fire Control Assistant Richard B. Diehl, both at the office of the Forestry and Recreation Commission, Concord, N. H. Copies are priced at 30 cents each.

59th ANNUAL MEETING
OF THE
NATIONAL FIRE PROTECTION ASSOCIATION

NETHERLANDS PLAZA HOTEL
CINCINNATI, OHIO

MAY 16-20

(United Press Photo)

Chicago Fire Kills 29

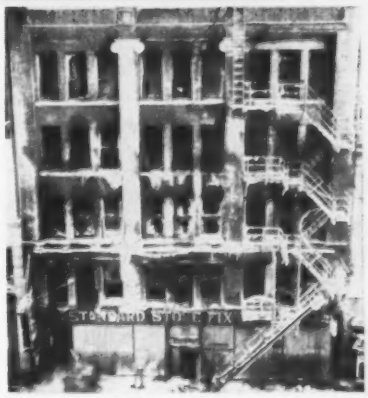
AS THIS issue of FIREMEN goes to press no authoritative information is available on the "hotel" fire in Chicago, February 12, in which 29 men died.

It was reported that the structure housed approximately 245 men in the top four floors of the 5-story building. When the fire occurred most of the victims were trapped in small cubicles which served as rooms. Fifteen other men were injured, including two Chicago fire fighters.

It was stated that the fire started about 2:00 A.M. when rubbing alcohol was ignited, involving the clothing of one of the tenants. Flames then involved combustible material in the room, spread rapidly, leading to heavy involvement of the building, which while it might be considered a "very low class" structure, did provide a Chicago hotel death toll second to the LaSalle Hotel fire on June 6, 1946, in which 61 persons died.

In that year the LaSalle fire was followed by two other hotel fires in which major loss of life occurred. On June 9, 1946, the Canfield Hotel in Dubuque, Iowa, burned taking the lives of 19 persons. On December 7, 1946, the Winecoff Hotel fire in Atlanta, Georgia, took 119 lives.

With these three tragedies in mind, the NFPA in 1948 prepared a "Guide for Hotel Fire Safety Law"



(United Press Photo)

to assist public officials and others concerned with life safety in hotels. It is included in the 1954 edition of Volume III of the National Fire Codes — "Building Construction and Equipment" (price $6.00).

The guide details the construction and fire protection requirements of hotel occupancies with particular attention given to the means of egress, inside and outside stairs, exit signs and lighting, and automatic sprinklers and fire protection equipment. There are other recommendations which concern the duties of watchmen, guests, fire department notification and inspections by the State Fire Marshal.

The 20-page guide may be obtained as a separate pamphlet for 50c per copy by writing to NFPA Publications Department, 60 Batterymarch St., Boston 10, Mass.

"Wartime Fire Fighting"

Digest of a preprint from the April 1955, NFPA *Quarterly*. This was also the subject of an address by NFPA Chief Engineer Horatio Bond during the 27th Fire Department Instructors Conference at Memphis, Tennessee, February 22–25. Copies of the preprint may be obtained for 75 cents each from the NFPA Publications Department, 60 Batterymarch Street, Boston 10, Massachusetts.

IF CITIES are bombed during a future war, fire departments will have to cope with thousands of individual fires occurring simultaneously over wide areas. It is likely that such operations will be performed, not with heavy fire trucks, but with light, fast automobiles having small crews of fire fighters.

The experience of fire officers in Germany provides some informative studies for analyzing wartime fire-fighting problems, because, individually, those officers fought more and bigger fires during World War II than did fire officers in other countries. For example, in one attack on Hamburg, Germany, in 1943, one fire occurred during which all the buildings on 113 miles of street front were ablaze at one time. Damage to such German cities by bombing attacks was always 75 to 80 percent fire damage.

For similar fire problems in the future it is likely that fire fighting crews will not attempt to set up huge water curtains with large hose lines, but will be organized to fight and move rapidly from one fire situation to another. The men will have goggles, face masks and special clothing to operate in dark, dusty, smoky areas where sparks shower them from all directions. Obviously, such wartime fire fighting is for professionals; men who have stamina, skill and experience. The householder and part-time fireman of industry will have a decisive effect in controlling small fires, but their activities will necessarily be limited to fighting fires in the "first aid" stage.

In the central areas of bombed cities, where blocks of buildings are totally involved in fires, no amount of men or fire fighting equipment will make an impression. However, this area of complete damage may be only a small percentage of the total area where there is some damage. Thousands of buildings will have small fires which can be attacked successfully with water from pails, stirrup pumps and fire extinguishers. Despite a large central mass of fire many large buildings can be saved by experienced professional fire department crews.

It is clear that the effects of the A-bombs and H-bombs extend over such huge areas of ground that the control of fire companies by individual municipalities may not enable fire companies to protect themselves from blast, fire and radiation hazards, let alone do any fire fighting.

The area affected by a large nuclear weapon discharged on a city target may be so great that the only conclusion one can draw is that fire departments must be put under state control. Many states have already taken steps in this direction and the problem of wide-scale organization and operations is receiving active study from state and municipal fire authorities.

Excerpts from a letter to NFPA Chief Engineer Horatio Bond

Dear Mr. Bond:

I received with pleasure . . . the paper on "Wartime Fire Fighting." You will appreciate that I have studied with great interest your detailed and thorough presentation, and I must compliment you on the way you have correctly understood, described and analyzed all the events. . . .

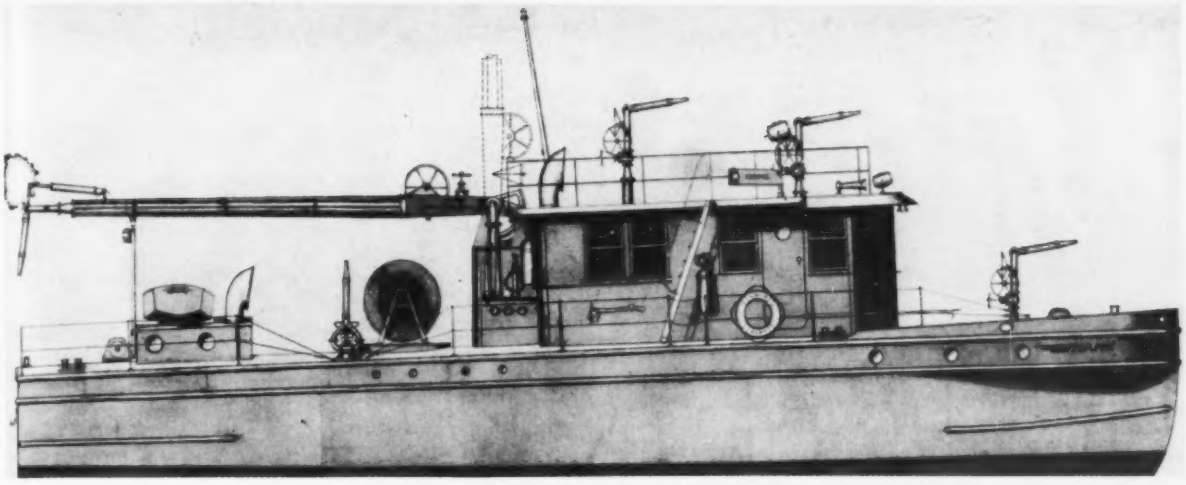
I am aware . . . that American fire fighting forces are struggling with the same difficulties which plagued us here in Germany before and during the war. I refer to the subordination of fire fighting forces to other organizations and the resultant inevitable complication of the chain of command and operations in general. It would be most deplorable if American fire fighting forces were unable to maintain their independence of organization and conduct of operations. I could cite a whole series of practical and concrete examples, from German practice in civil defense organization and command, which show very clearly that, only with the maximum independence in organization and operations, can the fire fighting force fulfill the decisively important tasks which are allotted to it in civil defense.

In Germany, before the war and even as far back as the First World War, there was a widespread idea that professional fire fighting forces could not assume any command functions in civil defense, because their engineer-officers were not sufficiently trained in "the leading of troops." It was said that command had to be reserved for police and army officers. We felt this was a very disturbing notion, but, because of the political situation, we were unable to do anything about it. The first air attacks on German cities, Hamburg among them, showed emphatically that, with hardly an exception, the opposite was true. The fire fighting forces and their engineer-officers were the only ones who kept their nerve under the pressure of disaster and were able to maintain command of their operational apparatus. This was quite simple because, during the daily experience of years and years, they had been forced to deal with unexpected and often frightful experiences.

The first attack on Hamburg on 18 May, 1940, was a complete surprise. The fire department learned of the attack as fire calls came in over the fire alarm system and public telephone, and the major part of the Hamburg Fire Department was already in operation by the time that the preliminary air-raid alarm signal was given by the civil defense warning system. Flak was already shooting upward from every anti-aircraft gun by the time, a few minutes later, that the civil defense warning system sent out the signal which meant "aircraft overhead." The Hamburg civil defense organization was certainly not bad, but by the time it had all its positions occupied and was ready to operate. the fire department already had most fires under control. Naturally this fact was played down during the war, and we in the fire department were unable to play it up because of the secrecy stipulations.

Very sincerely yours,

H. BRUNSWIG,
(A chief officer in the Hamburg Fire Department—Ed.)



Diesel Powered Fire Boat

NAVAL architect E. J. Alpaugh of Fairhope, Alabama, recently designed this compact fire boat which has interesting specifications for pumping and operational equipment.

Overall length of the vessel is 64 ft. 10½ in. Overall beam at the deck is 21 ft. 4½ in.; slightly less at the waterline beam. When loaded with all of its equipment the boat is designed to have an extreme draft of only 3 ft., 6 in. Specifications call for a welded steel hull and superstructure, insulated throughout. Below-deck design specifies 5 compartments, including heated and air conditioned quarters for a six-man crew, a galley, toilet, and shower. Hot and cold fresh water are to be available in these compartments.

Propulsion specifications call for two G.M. Series 71 "Quad" diesel engines, each rated at 760 horsepower, and each controlled from the pilot house. Electricity is to be furnished by a diesel driven 20 kw, 115 volt AC generator. Four 3,000 gpm, 2-stage De Laval pumps will provide a total pumping capacity of 12,000 gpm at 150 pounds pressure. Also specified are electrically driven auxiliary pumps and a compressor.

A Pyrene foam system is included to provide one million gallons of expanded foam in one hour. While this foam is being released the pumps can furnish water at the rate of 540,000 gallons per hour. The boat is designed to carry sufficient fuel supply for 10 hours continuous pumping.

As shown in the sketch above there are three 2,000 gpm monitors. The tower monitor, shown in lowered position, can discharge 3,000 gpm, and, when elevated, the monitor gun will be in operating position 40 feet above the waterline. Two portable 1500 gpm deluge guns are fixed in position on deck, but can be moved when the occasion demands. In back of the pilot house a reel, mounted on a turntable, carries 1,000 feet of 2½-in. hose.

The fire boat is designed to travel at about 14 miles per hour. Propulsion comes from jet discharge into the water, thus eliminating reverse gears, shafting and propellors, and providing the shallow draft because of the weight reduction.

Further information may be obtained from Mr. Alpaugh, P.O. Box 1216, Fairhope, Alabama.

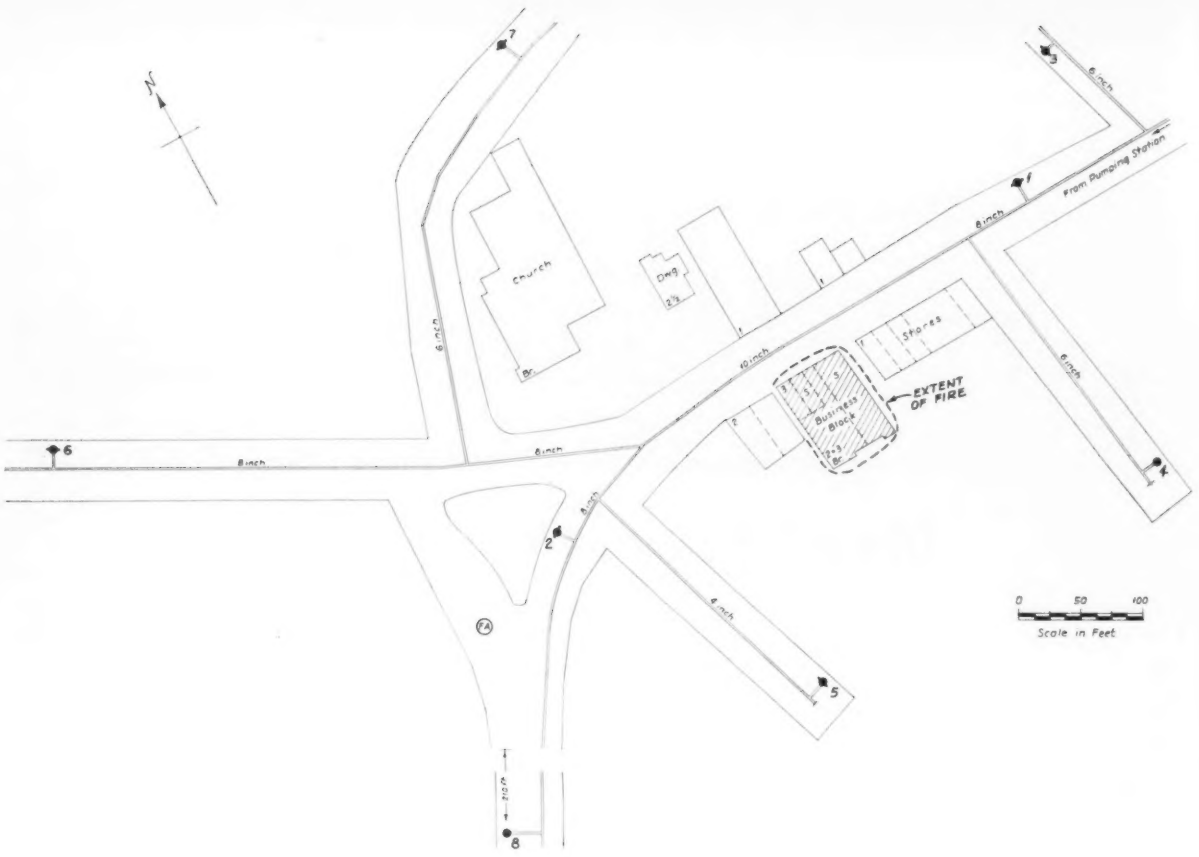
(See Opposite Page)

From "Fire and the Air War"

A German picture showing the conditions of streets in a fire storm area of Hamburg just after an attack. The buried vehicles are fire trucks which had to be abandoned due to the heat. This street was essentially a flue filled with flames and flying brands.

Fire Training School

A special fire school which will stress the proper techniques of controlling and extinguishing flammable liquid fires will be held in Bakersfield, California, March 24-25. It will be under the direction of Thomas S. Ward, Supervisor of Fire Training, California State Department of Education, Sacramento, and is sponsored by the Kern County Fire Department and the Western Gas and Oil Association.



How Do You Use the Water?

LIMITATIONS of water supply frequently are not adequately appreciated when making pre-fire planning. There is only so much water available before a fire and that can be measured and plans made in advance. Certain hydrants on small dead-end mains normally should not be used. Frequently underwriters' flow test data is available but if not it is very easy to estimate hydrant flows using pumper gages as outlined in the NFPA manual "Operating Fire Department Pumpers."

One of the most common mistakes is attempting to supply more pumpers than the water distribution system in the fire area can accommodate. This problem has not been given adequate treatment in promotional examinations for fire department officers as most test questions have assumed unlimited water supply and manpower for the available companies. This is extremely unrealistic because in most locations motor pumps are available with total capacity far in excess of actual water supply.

A good examination question based upon the above diagram might be: "Assuming a maximum available fire flow for pumpers to be 1500 gpm with eight hydrants available within 600 feet, and two additional hydrants within 1,000 feet, show on the diagram how you would utilize this supply to fight a major fire in the shaded business block.

Ten pumpers of from 500 to 1,000 capacity (total 7500 gpm) are available to the local department including mutual aid. The department has a 65-ft. aerial with ladder pipe.

Another Use for Water

One method of holding a fire boat in position is shown in this picture of fire in Pier No. 2, Hoboken, New Jersey, on January 26. Current and wind thrust against the New York City fire boat is offset by the thrust of the monitor stream into the water. *(Photo by Warren Zapp.)*

Highlights in the Growth of MSA

Another in a series of articles describing the history of manufacturers of fire equipment. This is the story of Mine Safety Appliances Company and of the products it manufactures for the protection of today's fire fighter. (For other articles on fire equipment manufacturers see the March and September, 1954, issues of FIREMEN *magazine.)*

"TRAGEDY brings improvement" is an axiom which has frequent application in fire service experience. And major tragedies led to the organization and growth of the world's largest manufacturer of safety equipment, Mine Safety Appliances Company of Pittsburgh, Pennsylvania.

The efficient breathing apparatus and first aid equipment which protects today's fire fighter was spurred to development by a series of mine disasters which took the lives of many men more than forty years ago. In 1910, more than one thousand men lost their lives in three mine incidents. The pressure of aroused public opinion resulted in the creation of the United States Bureau of Mines to seek methods of reducing the terrible toll in the mining occupation.

Two engineers working in the Bureau, John T. Ryan and George H. Deike, decided to form their own company to provide adequate equipment for protection of life. In those days safety programs were unknown in America. In 1914, when the company was founded, more than 2700 miners died in explosions in the nation's coal fields. Such breathing apparatus and safety equipment then available were imported from England and Germany. Mr. Ryan and Mr. Deike were graduate mining engineers from Pennsylvania State University, and both had worked as mine superintendents. Each had acquired experience with the inadequacies of breathing apparatus then used in the mines.

Primitive method of detecting carbon monoxide in the mines is shown in this picture, taken in 1911. The late John T. Ryan, Sr., one of the founders of MSA is shown holding a caged canary. Death of the bird indicated that there was a dangerous concentration of carbon monoxide or other toxic gases.

The partners' initial venture was the production of a compress bandage which could be applied to a wound without the necessity of touching fingers to the sterile portion. The company expanded operations in 1915 when Thomas Edison developed a dependable electric cap lamp and MSA began to distribute it throughout the world.

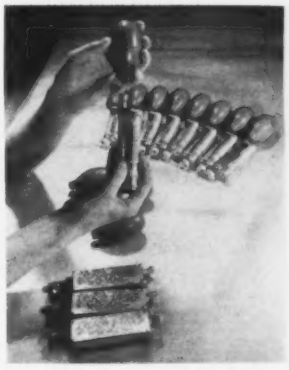
During the First World War, General Pershing needed breathing apparatus for "sapping" crews who were to tunnel under the enemy lines. MSA was assigned to produce 200 units of the equipment, but since the company had no plant facilities Thomas Edison offered the plant of the Edison Phonograph Works for the job. Three months later the first shipment of MSA breathing apparatus was heading for the troops overseas. From that modest beginning the company began to produce more types of safety equipment to meet the demands of fire departments and industry.

Today there are 3600 safety appliances manufactured by the company, many of which are adaptable for use in fire fighting. The products vary from an antiseptic swab to diving apparatus; from an emulsion for treating burns to sensitive instruments for measuring toxic or combustible gases. Equipment for fire fighters includes specially designed helmets, safety belts, asbestos suits and hoods, masks for protection against gas and oxygen limitations, gas detection equipment, medical and first aid equipment, and devices for administering artificial respiration and oxygen therapy.

A recent development of the company is the "Pneolator," a portable

(*Continued on page 34*)

Detection of the amounts of combustible gases and vapors in air is made possible by the MSA "Explosimeter" which is listed by Underwriters' Laboratories.



Measuring carbon monoxide in air is accomplished by this colorimetric carbon monoxide tester. Carbon monoxide colors the chemical in the tube and a graduated color scale indicates the degree of concentration.

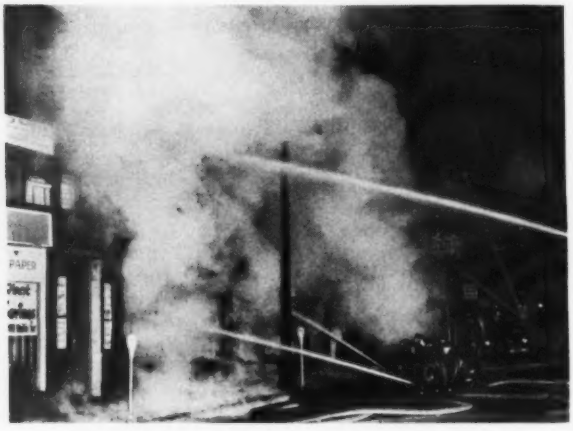
Saginaw, Michigan, January 3. When two men were fighting in the dining room of this 2-story and attic dwelling, 5 children and an adult went upstairs to an attic bedroom. One of the men purposely tipped over the oil-fired space heater. Spilled fuel immediately ignited and in a few minutes hot fire gases went up the open stairway. It is estimated that the fire was under control in 5 minutes after the alarm, but the children and the adult in the attic suffocated.

Fires in the News

Baltimore, Maryland, January 31. (*Wide World Photo*) More than 60 pieces of fire apparatus responded to multiple alarms where fire involved this automotive sales and service building. Open stairways, elevator shafts, non-firestopped walls, large open areas and oil-soaked flooring contributed to fire spread. Loss was estimated in the vicinity of $400,000.

Buffalo, New York, January 12. Fire started in combustible material near a Christmas crib in this church. Within 9 minutes Buffalo fire fighters responded to three alarms but fire spread to involved upper portion of the church above a false ceiling. Loss was estimated at more than $100,000.

Amsterdam, New York, February 4. (*Associated Press Wirephoto*) One adult and 11 children perished, and 5 others were injured, when an oil burner overflowed and ignited the nearby floor and partition. The occupant tried to extinguish the fire with blankets before calling fire department. He then opened all doors permitting a direct draft from front to rear of apartment building. All other occupants were asleep; 6 burned in two apartments and 6 were suffocated before fire fighters arrived.



Salem, Massachusetts, February 5. Cold weather also led to severe multiple alarm fires. (See page 11) This one in Salem's business district brought more than 125 fire fighters from four communities. Temperature was about ten degrees above zero. Initial estimate of loss was $500,000.

Carbondale, Pennsylvania, February 4. (*Wide World Photo*) An estimated $4,500,000 loss resulted when fire involved the business district of this city. It destroyed 29 business establishments and at least two others were damaged. At the same time four other major fires involved communities in northeast Pennsylvania, leaving more than 400 persons homeless.

Large Loss Fires in 1954

A RECORD number of large loss fires (those with losses exceeding $250,000) occurred during 1954. According to the annual report published in the January issue of the NFPA *Quarterly*, 313 large loss fires occurred in the United States and Canada, destroying a total of over $200,000,000 worth of property. Property loss was $72,000,000 less than the 1953 total, which was the highest ever recorded.

Loss of life amounted to 408 in the 1954 large loss fires, as compared to 336 in the previous year.

Increase in the frequency of large loss fires occurred in the following types of occupancies: mercantile, 54 compared to 29 in 1953; warehouses and other storage areas, 54, an increase of four; transportation, 57 as opposed to 39 in 1954.

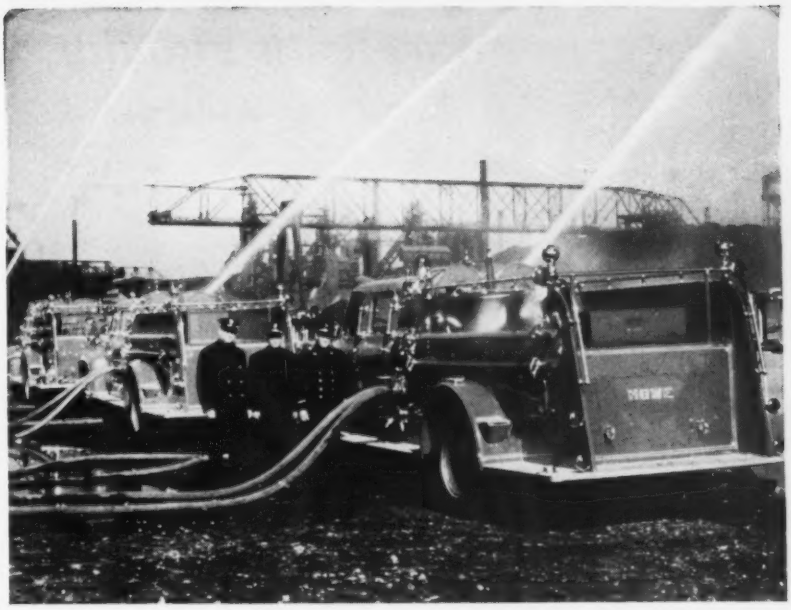
An encouraging note was a 30 percent decrease in the number of manufacturing fires, down to 75 from 105 in 1953.

Of the 313 large loss fires, 247 destroyed buildings; the rest involved aircraft and ships. Canada's building fire total was 36, as ten more than occurred in the previous year.

Delayed discovery was the most important factor leading to major damage in 70 percent of the building fires. In 156 of the properties involved in the large loss fires of 1954 there were no watchmen, and in 18 more only substandard watchman service was used.

Other major factors highlighted by the report were: excessively large areas in 214 building fires; absence of fire division walls in 145 fires; 73 instances where flames spread up open stairways; 33 where open elevator shafts contributed to fire spread; non-firestopped ceiling spaces influenced spread in 18 fires; non-firestopped walls in 18; and large undivided attics in 16 fires.

Most disastrous major fire of the year was the explosion on the aircraft USS *Bennington* which killed 106 and injured 119. Excluding aircraft fires, the largest single fire occurred in Pekin, Illinois, where a group of whiskey warehouses burned, killing 6 fire fighters and destroying 91,000 barrels of whiskey with loss amounting to $7,100,000.



WATEROUS-equipped trucks, built for City of Dearborn by Howe Fire Apparatus Co., pass test

Dearborn compares; picks Waterous

● Mayor Orville L. Hubbard's modernization program for the City of Dearborn, Michigan, called for purchase of four new 750 GPM pumpers.

Chief Frank J. Gilligan, a professional fire fighter for 30 years, prepared specifications, then directed an exhaustive study of all available equipment.

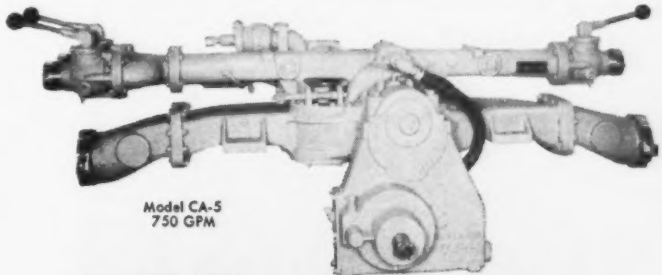
Result: purchase of the four WATEROUS-equipped pumpers shown above.

Dearborn is typical of progressive communities all across the nation, which are writing more exacting specifications than ever before.

For example, more specifications now call for a horizontally-split pump body that permits impeller assembly removal without disconnecting drive lines, removing transmission, or disturbing the setting of the pump in the chassis. They call for bronze wear rings which make it possible to renew efficiency without the need for replacing entire pump casing.

There's also a growing insistence that impeller shafts be supported by oil-lubricated anti-friction bearings located outside the pump casing and protected from water and dirt by packing, flinger rings, and oil seals.

If you are planning to buy new pumping equipment, you'll find "Preferred Fire Pump Specifications" a helpful guide. For your free copy, or for complete information on complete line of WATEROUS *Dependable* Fire Pumps, write WATEROUS COMPANY, 40 Fillmore Ave., St. Paul 1, Minn.



Model CA-5
750 GPM

Waterous
DEPENDABLE PUMPS
SINCE 1886

Race with Flaming Death!

From a bulletin of the Chautauqua County, New York, Fire Service, comes this story of a railroad engineer's experience with a fire-involved cargo of flammable liquid.

BACK in 1869 I was a hogger on a mixed run of the Buffalo, Corry & Pittsburgh between Mayville Summit and Brocton, New York. The two towns are only ten miles apart, but the track between them is so crooked that you have to travel fourteen miles to get there by rail, and the grade, over the whole distance, is over forty feet to the mile.

About nine o'clock on the night of August 17, 1869, we reached the Summit with a train of two passenger coaches carrying between fifty and sixty passengers, six wooden oil cars loaded to their brims, and a boxcar containing two valuable trotting horses and their two keepers bound for a race in Cleveland.

A few minutes later, I got a signal from the conductor and pulled out for Brocton. We were under good headway, when I glanced back and saw that one of the oil cars in the middle of the train was on fire. I reversed the engine and whistled for brakes. Both the conductor and the brakeman jumped off, uncoupled the coaches which were on the rear of the train, and set the brakes to hold them on the grade, bringing them to a stop.

Assuming that the oil cars had also been braked, I called to the brakeman on the boxcar just behind us to draw the coupling pin separating the car from the head oil tank, and backed up to take up the slack. What I had in mind was to run far enough away to save the boxcar and the locomotive.

When the pin had been drawn, I ran down the hill a piece to get out of danger. On looking back, I was horrified to see all six oil cars rolling after me with rapidly growing speed. Either the brakes had not been set or they had failed to hold. I didn't know which. But I did know that all I could do now was to make a run for it into Brocton, though at the speed we'd be obliged to take those sharp curves — twenty miles an hour was usual on them — the chances were we'd never get there.

When I saw those flaming cars — all six of them were on fire by now — racing toward me only a few rods away, I pulled the throttle wide open. But not soon enough. The oil cars caught me before I got underway, slamming with full force into the rear of the boxcar, smashing in one end of the car and knocking the horses and their keepers flat on the floor.

The heat was almost unendurable. No matter what I did, I couldn't put more than thirty feet between the pursuing cars and ourselves. By the light of the firebox as my fireman opened the door, I saw the face of one of the keepers in the boxcar. He had climbed up on the grate opening. He begged me, for God's sake, to give the engine more steam.

I was giving her all the steam she could carry. The grade itself was enough to carry us down at fifty miles an hour. Every time we hit one of those curves the old girl would run on just about one set of wheels. Why in the world she didn't topple over is something I'll never understand. Maybe the speed kept her on the tracks. Anyway, it was as if she realized it was a race between life and death, and she struggled desperately to save us.

The night was dark, and the railroad ran through woods, deep rock cuts, and along high embankments. We thundered along through them at lightning speed, with that hell on wheels only a few feet behind us. Those wooden tanks contained at least 50,000 gallons of oil, and with the rush of the wind against them they trailed a flying avalanche of fire three hundred feet along behind them. Flames shot nearly a hundred feet into the air, and the roar sounded something like a giant cataract. Now and then a tank would explode with the violence of a cannon, send a column of flames and pitchy black smoke mounting high above the cars. Burning oil scattered about in the woods, and small forest fires were springing up along the track behind us.

At the speed we were making, it wasn't long before the lights of Brocton came into sight down in the valley. I was relieved. For a moment I thought we might even make it. Then I remembered that Train No. 8, the Cincinnati express, on the Lake Shore, was due at the junction about the time we would be there.

Our only hope all along had been that the switchman at the junction would think far enough ahead to open the switch connecting us with the crossover track and let us run in on the Lake Shore track where the grade would be against us and enable us to get away from the oil cars.

But now the switch would, of course, be closed for the express. Our last hope was gone unless the express was late or unless someone had enough sense to flag it down.

Just then my fireman and I saw the express tearing along toward the junction. In those next moments I lived years, waiting to find out whether we would reach the junction and get the switch in time for it to be set back again for the express. If we didn't, we would crash, and scores of people, passengers and crews, would be killed or injured.

"Good God," I said to my fireman, "what are we going to do?"

The fireman — he was a brave little fellow — said all we could do was whistle for the switches.

That whistle was one prolonged yell of agony, a shriek that seemed to tell us our brave old engine knew our danger and had her fears.

Neither the fireman nor I spoke another word. Then, the engineer on the express train, seeing us tearing down the hillside with that long trail of fire behind us, realized that only one thing could save us. He whistled for brakes and brought his train to a stop not over ten feet away from the switch points. The switchman now understood our signal and opened the switch. We shot in on the Lake Shore track and whizzed by the depot like a rocket. The burning oil cars followed us in. But the race was over. Their momentum carried the oil cars after us up the track for nearly a mile before they came to a stop. For three hours more they continued to burn, send-

ing a pillar of smoke and flame high into the night sky. And then there was nothing left of the six wooden cars but a heap of smoking ruins.

When we finally brought the locomotive to a stop, my fireman and I were both so weak that we couldn't get out of the cab. The two horsemen in the boxcar behind us were unconscious, and the horses were ruined. But we were all alive.

And how long do you think it took us to make those sixteen miles from Summit to the spot two miles up the Lake Shore siding where we stopped? Twelve minutes — at a speed of eighty miles an hour! But those twelve minutes were the longest and most horrible I ever lived.

(*Duff Brown died in 1884, leaving the above true story of his most exciting experience.*)

Kentucky Training

INCOMPLETE statistics were reported for the State of Kentucky in the annual report of firemen's training in the December, 1954, issue of FIREMEN. Mr. J. L. Thompson, Chairman of the Kentucky Fire School Committee, writes that last year the school included intensive training courses for officers and also covered flammable liquids fire fighting and inspection procedure, in addition to the basic courses on pump operation, hose and ladder evolutions, and rescue.

Classes at the school (held at the University of Kentucky) are now divided into five sections enabling students to receive an 8½-hour course in each of the subjects mentioned above, over a four year period.

The 1954 training also included an Instructors Training Course at the University, with 17 instructors completing the training and receiving certificates from the Kentucky State Department of Education. These instructors are used as assistants in the State training program for firemen, in addition to acting as drill masters for their individual fire departments. The course will be given again this year.

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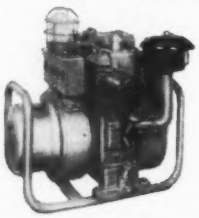

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Going to a Fire School?

Alabama: The Alabama State Fire School will be held at Tuscaloosa, May 30-June 2. Write to M. O. Hulsey, Public Service Training, Box 1475, University of Alabama.

Arkansas: The Arkansas State Fire School will be held at Little Rock, Arkansas, July 11–14. Write to J. C. Ruppert, State Supervisor, Trades and Industrial Education, 18th and Spring St., Little Rock.

Colorado: The 1955 Convention of the Colorado State Firemen's Association will be held at Estes Park, June 8–11. Write to Secretary Arthur J. Becker, 4250 Stuart St., Denver 12, Colorado.

Iowa: The Iowa State Fire School will be held in Ames, Iowa, May 24–27. Write to Mark Brosier, Supervisor of Firemanship Training, Engineering Extension Service, 110 Marston Hall, Ames, Iowa.

Illinois: The Illinois State Fire School will be held at Champaign, June 13–17. Write to George W. Harper, Director, Illinois Fire College, University of Illinois, Urbana, Illinois.

Kentucky: The Kentucky Fire School will be held at Lexington, June 6–9. Write to J. L. Thompson, Chairman, Kentucky Fire School Committee, 940 Starks Building, Louisville 2, Kentucky.

Maryland: The 4th Annual Fire Inspectors Short Course will be held at the University of Maryland, April 5–8. The NFPA Inspection Manual will be used as a text. Meetings will be held in the Fire Service Extension Building on the campus. Write to Robert C. Byrus, Director, Fire Service Extension, University of Maryland, College Park, Maryland.

Michigan: The Michigan State Fire School will be held at Ann Arbor, June 13–17. Write to M. D. Whale, Supervisor of Public Service Training, Office of Vocational Education, P. O. Box 928, Lansing, Michigan.

Minnesota: The 1955 Minnesota Fire School will be held at the University of Minnesota's Institute of Agriculture, St. Paul, April 25–29. For further information write to Dr. J. O. Christianson at the Institute, or to Leonard C. Lund, Deputy Commissioner, Fire Marshal Department, St. Paul, Minnesota.

Nebraska: The Nebraska State Fire School will be held April 17–19 at Grand Island. Write to Howard Gorham, State Supervisor, Trade and Industrial Education, State Capitol Building, Lincoln, Nebraska.

Ohio: Annual Conference of the Central Western Firemen's Association of Ohio will be held at Eaton, June 22.

The Ohio State Fire School will be held at Columbus, September 12–16. Write to Robert M. Reese, Supervisor, Trade & Industrial Education Service, Department of Education, 220 S. Parsons Ave., Columbus, Ohio.

Oklahoma: The Oklahoma Fire School at Stillwater will hold its annual session on April 26–30. Write to George Orgain, Fire Service Instructor, Trade and Industrial Dept., Oklahoma A & M College, Stillwater.

Saskatchewan: The Fifth Annual Conference of the Saskatchewan Association of Fire Chiefs will be held at Weyburn, June 23 and 24. Write to Chief G. M. Beach, Fire Department, City of Weyburn, Saskatchewan.

Wisconsin: The State Fire School at Madison will be held on August 15–17. Contact H. C. Thayer, Chief, Trade and Industrial Education, State Board of Vocational and Adult Education, Madison.

Arson Seminar

THE Eleventh Annual Arson Investigators' Seminar is scheduled to be held at Purdue University, Lafayette, Indiana, April 25–29. The Seminar is conducted by the Public Safety Institute of the University with the cooperation of local, state and national organizations interested in arson control and prevention.

The program is devoted exclusively to the study of arson detection and investigation. Consideration is given to specific arson problems of interest to fire department personnel, enforcement officials, insurance investigators and other professional personnel who have an interest in this subject.

Complete information may be obtained by writing to Prof. Shelby Gallien, Director, Public Safety Institute, Lafayette, Indiana.

New York City Inspections

FIRE Commissioner Edward F. Cavanagh, Jr., of New York City credited increased emphasis on fire prevention as a reason for the decline in fires in that city in 1954. Last year there were 53,284 fires as compared with 54,392 fires in 1953. Fire deaths in 1954 totaled 133 as compared with 137 in the previous year.

The largest decrease last year was from July 1st to December 31st when there were 5,116 fewer fires. Commissioner Cavanagh stated that the building inspection program which the fire departments had adopted was the most significant contribution to fire prevention.

The New York City Fire Department also has undergone a reorganization and Commissioner Cavanagh has requested an additional 3,000 men to overcome the manpower shortage in the department.

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Circul-Air "A-Z" FIRE HOSE WASHER

- Washes and Drains in One Operation
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The new, inexpensive A-Z Hose Washer drains and rinses the hose as it washes. 4 Roto-jets constantly spray hose with clean, fresh water — all sediment is flushed through collecting pan and down the drain. Can be used with or without soaps or compounds. Semi-automatic, the A-Z is operated by just one man. The brisk action of the cleaning brushes moves the hose slowly through the washer. No strain. No fatigue. Turn tables keep the hose OFF the floor. They're excellent for reloading truck (several lengths may be stacked on each) or loading the hose dryer.

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The patented electrically operated Circul-Air hose dryer circulates prewarmed fresh air through loosely coiled hose at the rate of 5 to 6 air changes per minute. Saves floor space, hard work and lengthens hose life!

No other method is so fast — so economical — so easy to use. If *you* haven't enjoyed the benefits of Circul-Air, we suggest you investigate its merits now — write for catalog and Hose Drying Manual.

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Superior quality, advanced design, exclusive fabric materials and safety features have made Midwestern a leader in the field of firemen's safety clothing. For complete information on our full line, see your Midwestern dealer. A letter to the factory will also bring you literature and material samples for your inspection.

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IAFC Chiefs Meet in Puerto Rico

CHIEF Raul Gandara (NFPA member), of the Insular Fire Service of Puerto Rico served as host to the Board of Directors and other members of the International Association of Fire Chiefs in San Juan, January 9–13. The fire chiefs assembled represented the United States, Canada, Trinidad, Uruguay, Costa Rica, Virgin Islands, Nicaragua, and Puerto Rico. Pictures on these pages show some of the highlights of the 4-day meeting, which included a reception by the Mayor of San Juan, business sessions at the Caribe Hilton Hotel, and a picnic at the famous Luguillo Beach.

The Lady-Mayor of San Juan, Honorable Felisa Rincon de Gautier, shown with IAFC President C. Gray Burnett.

(Left to right) Ontario Fire Marshal W. J. Scott, (member NFPA Committee on Fire Department Equipment); Chief Gandara; George J. Richardson, Secretary-Treasurer of the International Association of Fire Fighters, (member NFPA Board of Directors and NFPA Committee on Firemen's Training); and Captain Teofilo Conrado Ramos, who represented the Montevideo, Uruguay, Fire Department.

Members of the IAFC at Chief Gandara's office.

Some of the guests for whom the Lady-Mayor offered a reception on Tuesday, January 11.

Chief Gandara delivers a welcoming speech at the opening session.

The Airport Fire Brigade of Puerto Rico put on a crash and rescue drill involving flammable liquids for the IAFC members on January 10, 1955.

Not the least of entertainment was the picnic held at Luguillo Beach.

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REPRESENTATIVES IN PRINCIPAL CITIES

Joe Treddles - On Telephone Alarms

We envy the editors of "Fire," a monthly magazine, published for the British Fire Services, at Chronicle House, Fleet Street, London. They have a faithful correspondent named "Joe Treddles," who periodically informs them of his experiences as a call fireman. Readers will recall our first mention of Joe in the August, 1954, FIREMEN, *in an article entitled "Y'r' a Ruddy Washout." In that episode he described his collapsing fire station which even the owls mistrusted. The new episode, below, appeared in an editorial in the December, 1954, issue of "Fire" and throws new light on the failings of telephone alarms.*

SOME of you may recall Fireman Joe Treddles, who, in a missive to me some seven months ago 'very respectfully' asserted that if I was not instrumental in obtaining for him and his fellow rural fire fighters a better station, one that would stand four square to the winds without the aid of pit-props and wallpaper, I would be a 'ruddy washout.' Probably you, as well as I, imagined that he had faded gently into the lovely landscape in his part of Old England, but this is not so, judging from a most voluminous letter, dealing with fire protection in his village, that has just reached me.

"It appears that he and his fellow-firemen have been suffering from false alarms by telephone, so much so that if he were so technically minded as one prominent fire brigade committee there would not be a telephone instrument in the village today. But, let him tell his story in his own way."

"Night after night all the telephones in our houses went off but when we got to the station on our bikes we could not get any idea where the fire was. The same thing happened at the police station, which is a cottage near our dump.

"After what he called exhaustive but inconclusive inquiries, the constable asked a most respected villager, Mr. Jack Burzell what he knew about it. Now Mr. Burzell was the part-timer here whose face didn't fit the helmet; the one to whom we presented a consolation medal. All Jack could do was to tell the copper that if he knew who was doing it he would tell him. The copper walked away leaving Jack under a cloud of suspicion.

"A couple of days after, Jack sees a chimney on fire at the other end of the village. In a brace of shakes he had it out and the kitchen nice and clean, like a proper fireman that he used to be. The lady of the house was so pleased that she gave Jack a rabbit that had been killed a couple of days or so.

"Night was coming on and Jack thought of a short cut across a field, but well away from any winter wheat. It was the very field in which one of our chaps was carrying a sack of spuds last January, when he fell over a cow, ricked his shoulder and nearly broke his spectacles.

"Remembering all this, Jack was keeping a sharp look out for the cow. There was not a sign of her or any other four-legged animal until the moon came from behind a bank of cloud and showed the old cow rubbing her hide like billy-o, against a telephone post close to the hedge.

"It did not take Jack, who has technical knowledge that would stagger the council of the IFE (Institute of Fire Engineers — *Ed.*), to know that the cow was causing the telephone lines to 'contact' and set bells ringing. When we told all this to the GPO engineers next day they said that Jack was a blooming wonder as they had never thought a cow could give a false alarm.

"Naturally, Jack, on catching the cow in the act, set about her with a hurdle stake, and then started for home. As luck would have it, who should he meet on the road but the suspicious copper, and while Jack was assuring him that the rabbit had been given to him something most unnatural happened.

"Some object, or other, hit the copper on the head, scratched his face, and tried to get away with Jack's rabbit and fled as quick as it had come. The copper blamed Jack for all this; but Jack is scientific. He struck a match and found on the ground two small, downy, feathers. 'Blimey,' he said, 'Owls; those we chased out of the roof, I bet.'

"The copper wanted to know why the owls had gone for him since he had not chased them from the fire station. 'I reckon it's the onions I eat regularly twice a day that kept these owls off me,' remarked Jack. The copper sniffed gently. 'I think you're telling the truth,' he said. And with that he put away his report book.

"Jack helped the copper's missus patch up the copper's face, and scars and stripes. After that, Jack told the copper what the cow had been doing to the telephone post. This removed all bad feeling against everyone, but the farmer who put her in that particular field. Now she's in another we don't get many false alarms, except on windy nights."

(FIREMEN *will present another of Joe's episodes in a forthcoming issue — Ed.*)

Monroe FOLDING BANQUET TABLES

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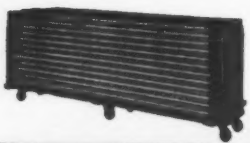

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The New York Fire Department recently received 25 of these new aerial ladder trucks made by the Four Wheel Drive Auto Company, Clintonville, Wisconsin. The truck features a 75-foot two-section aerial ladder which can be raised in 7 seconds and extended to its full length within 19 seconds. The truck also carries 271 ft. of ground ladders in addition to fire equipment. Tractor has 4-wheel drive to front and rear wheels.

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Separately, each of these Rockwood products has its own particular advantages for fighting various types of fires. Together, they make a mobile, multi-purpose task force that delivers a whale of a lot of protection against *any* type of fire, whether it's Class A (wood, paper, rags, etc.), or Class B (flammable liquids). That includes personnel protection, too, because safety for the men who use them is an essential factor in all Rockwood fire fighting products.

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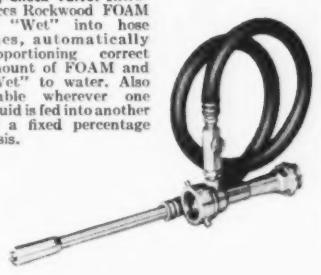
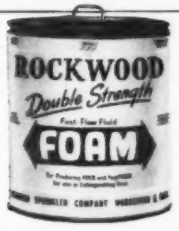
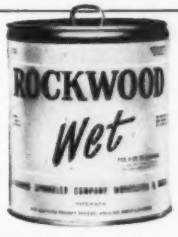
* **Type SG-60 Nozzle.** A true all-purpose nozzle that fights fire 5 ways. It discharges high velocity WaterFOG, low velocity WaterFOG (with applicator), FogFOAM, solid stream of water or solid stream of FOAM.

FOAM and "Wet" Eductor with the new FW Metering-Check Valve. Introduces Rockwood FOAM or "Wet" into hose lines, automatically proportioning correct amount of FOAM and "Wet" to water. Also usable wherever one liquid is fed into another on a fixed percentage basis.

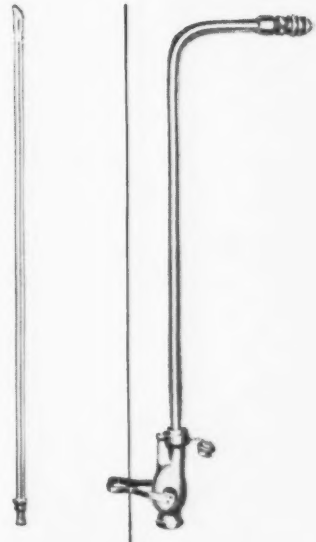




* **Rockwood Double Strength FOAM.** Puts out fires in flammable liquids, and in ordinary combustibles, quicker, at lower cost. Three parts FOAM and 97 parts water create a tremendous heat-resistant blanket. Flows freely at —15°F.



* **Rockwood WET.** One part WET mixed with 99 parts water increases water's penetration and extinguishing action. Gives quickest results against deep seated fires. Saves time, water, manpower.



Bayonet Piercing Applicator. Has a hardened steel cutting tool attached to tip, enabling operator to pierce through partitions, into interiors, etc. Discharges low velocity WaterFOG or FogFOAM.

* **Long Extension Applicator.** Discharges low velocity WaterFOG in an umbrella pattern, smothering fire without causing turbulence to flammables. Excellent personnel protection is another advantage.

FF Extension Unit. Shown with Type SG-60 Nozzle. Discharges Rockwood FOAM in a solid stream or as FogFOAM. Wide angle makes it possible to cover large areas at one time.

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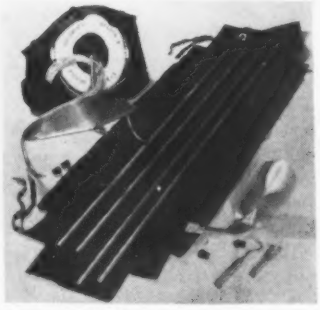

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Give it, every time, everywhere, with an AQUATIC Search and Rescue Kit. Light in weight, yet substantially constructed for long life. Write for folder. Shows how others have used AQUATIC Kits in rivers, lakes, gravel pits, wells, etc. When the public demands action, give it with AQUATIC!

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Fire Department "Canteen"

DEPUTY Chief J. Sauerwein and Chief Master Mechanic Fred H. Witler of the St. Louis, Missouri, Fire Department recently sent these pictures to FIREMEN. They show the new "Canteen Unit" which was converted from a city bus by the fire department's shop mechanics. The bus was donated for this purpose by St. Louis Director of Public Safety Joseph P. Sistric, President J. C. Blaine and Operating Manager J. W. Dameron of that city's Public Service Company.

Seats, tables, a counter and storage shelves were installed, together with wiring for a 110-volt electric circuit, which supplies lights, a ventilating fan and a "hot plate" for cooking. Water is supplied through piping which can be connected to a booster or hydrant line. Two-way radio and "walkie talkies" are also available to permit fireground communications and continual contact with Fire Alarm Headquarters. Plans also call for the installation of a loud speaker on top of the vehicle so that orders and announcements may be broadcast. (*Photos by W. C. Runder Photo Co., Inc.*)

(Above) Interior of the new canteen unit, showing counter, lighting and seating arrangements.

(Left) Master Mechanic Fred H. Witler (at fountain) serves refreshments.

Photo Courtesy of Seco Safety Products Co.

Flat-Folding, Rubber-Lined Hose For Quick, Sure Action Protection

Qua-Flex fire hose is specially constructed to fold flat. This makes it highly adaptable for storage on racks, even those designed for unlined linen hose. When hose is pulled from rack, pins drop easily and hose does not kink. It takes up less space than most other types of fire hose. That's why it's so popular for fire protection service in office buildings, institutions, industrial plants, ships, or wherever space is limited. It is quickly and easily dried after use; hence frequent testing doesn't damage it.

This hose is ideal for use with a fog nozzle—an advantage over linen hose, and one that is usually found only in larger, heavier hose.

The tube is made of a slow-aging, non-acid-forming, synthetic rubber compound that always remains resilient, resists cracking and stays leak-proof. The jacket is evenly woven of long staple cotton yarn. Tube and jacket are tightly bonded together for strength and long life.

Qua-Flex is available in I.D. sizes 1½", 2" and 2½", all guaranteed to withstand a test pressure of 300 p.s.i., in 25, 50, 75 and 100 foot lengths. Popular 1½" size has Factory Mutual Approval.

We also manufacture a complete line of industrial and municipal fire hose, as well as a complete line of industrial rubber products: belting, hose, packing and moulded rubber of every construction for every need. *Through your Quaker and Quaker Pioneer distributor* our research and engineering services are always available to help you solve any fire protection or industrial rubber problem. *Write for free folder and name of nearest distributor.*

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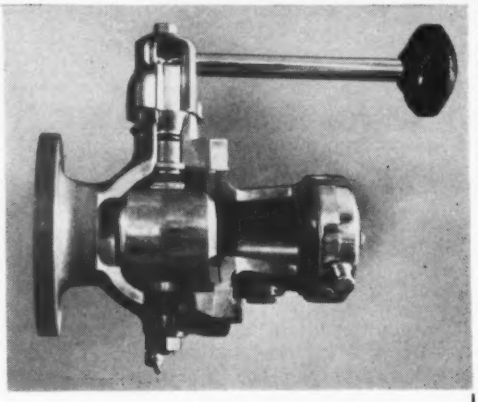
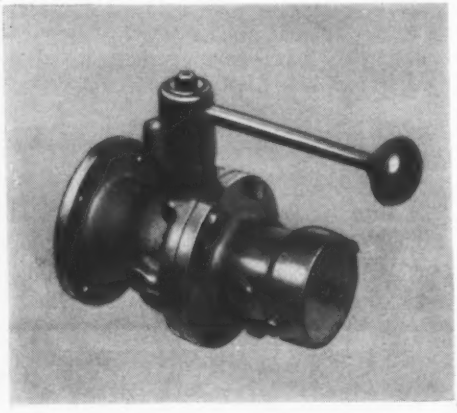
CAIRNS & BRO., Inc. - Allwood, Clifton, N. J.

HALE TYPE "BL" Discharge Valve

This popular HALE ball-type BL Valve is not only furnished on new HALE Pumps, it is also available for easy installation on ALL Hale Fire Pumps now in service, regardless of age.



Above — View of BL Valve cut away to show internal construction. Valve is in open position with cap on.



Note: New revised Bulletin No. 293 now available covering complete details. Send for yours today!

Hale Fire Pumps are built in all standard capacities.

★

HALE FIRE PUMP CO.

CONSHOHOCKEN, PA.

Good Ways to Kill a Good Fire Department

From an address to the Southern Illinois-Northern Wisconsin Firemen's Association by Emmett T. Cox, (Secretary NFPA Committee on Firemen's Training), Field Officer, Fire Prevention Department, Western Actuarial Bureau, Chicago, Illinois.

Don't attend any drill sessions, but if you do, arrive late.

Never strive for an officer's job. It is easier to criticize than to do things.

Do nothing more than is absolutely necessary, but when others use their ability to help matters along, howl that the Department is being run by a clique.

If you have a suggestion to offer, do not think of going to the officer in charge — just yell to the world at large.

Get "sore" if you are not appointed as an officer, but if you are appointed, do not attend officers' meetings and drills.

Get good and mad at some members of the Department and stay that way.

Be pessimistic about every proposal to improve the Department and to promote the Department's best interests.

Watch the proceedings of the City Commissioners and the Mayor and point out the errors of their ways to everyone who will stop and listen.

Encourage your wife and relatives to carry Department gossip to the neighbors.

Show visitors to the Department no respect or interest.

Don't cooperate with your local newspapers in giving them facts and news.

Criticize your officers to the rest of your fellow workers.

Let the other fellow do all the work around quarters.

Think that you are badly abused and that everyone is picking on you.

Don't cooperate with the officers; go over their heads to the City Fathers.

Show little respect for official orders.

Dress sloppy and let dust and dirt accumulate on your apparatus.

Don't check all equipment daily, leave it to the other fellow to do.

In other words, just raise hell about anything!

Individual Fireman's Responsibility in Public Relations

6 x 9 inches, 22 pages

35 cents per copy

Write to:

NFPA Publications Department
60 Batterymarch Street
Boston 10, Massachusetts

Philadelphia protects its historic shrines and industrial might with

John BEAN HPV* Fire Fighters

Philadelphia — and the nation — cherish the city's many historic landmarks, among them Independence Hall and the Betsy Ross flag-house. Yet the heartbeat of Philadelphia is its big industry — the city ranks among the country's first ten manufacturing centers. So that fires can be controlled before they destroy buildings that are irreplaceable—or cause production shut-downs that can affect thousands—Philadelphia needs top-notch fire protection equipment — apparatus that is versatile, absolutely dependable and, above all, fast in action. For these reasons, Philadelphia's Fire Department, under the leadership of Deputy Fire Commissioner George E. Hink, added four John Bean HPV* Fire-Fighters.

Now, Philadelphia's firemen are armed with the triple fire-killing power of John Bean's true High-Pressure Fog. Delivered at 850 PSI pump pressure, it cools, it smothers, it isolates flames in seconds — and uses only 10% of the water needed with ordinary pressures. Either separately or simultaneously, hard-slugging Underwriters' approved volume streams are delivered when needed. Two great John Bean pumps and two proven methods of fire-fighting — both are combined in a single piece of compact, modern equipment.

Today's trend in fire protection is to John Bean HPV*. Learn what it can do for your community — write today.

Using John Bean HPV equipment, Philadelphia firemen fight stubborn fire in a warehouse storing rubber, excelsior, paper and jute. Fire was completely out in less than 6 hours. In another city, employing conventional apparatus, a similar fire took 6 days to control.

JOHN fmc BEAN

HPV — THE TWO-FISTED FIREFIGHTER with both High-Pressure Fog and Volume Pumps
Can be mounted on most standard truck chassis

John Bean Division, Dept. 126, Lansing 4, Michigan

John Bean Division, P. O. Box 145, San Jose 3, California

A PRODUCT OF FOOD MACHINERY AND CHEMICAL CORPORATION

"4-11" Christmas Tree

The alert fire department is constantly aware of the value of top quality fire fighting equipment.

To some, the fire truck shown may appear to be lit up like a Christmas tree; but it will never be mistaken or overlooked for the valuable tool it is because it is protected, visibly and audibly by the finest warning signals — by FEDERAL.

The big C6 siren roars for the right of way through today's high-density traffic, identified and pinpointed by the famous FEDERAL Beacon Ray light on the cab roof, the FEDERAL Propello-Ray light in the siren itself and its twin #19 Propello-Ray light on the right fender. This super galaxy of moving, flashing red beams, punctuated by the powerful FEDERAL siren spells 'speed with safety' through traffic.

Specify FEDERAL Beacon Ray and FEDERAL Propello Ray lights and FEDERAL coaster sirens for your apparatus.

FEDERAL SIGN and SIGNAL Corporation

formerly Federal Enterprises, Inc.

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POWHATAN

Double Hydrant Gate Valves

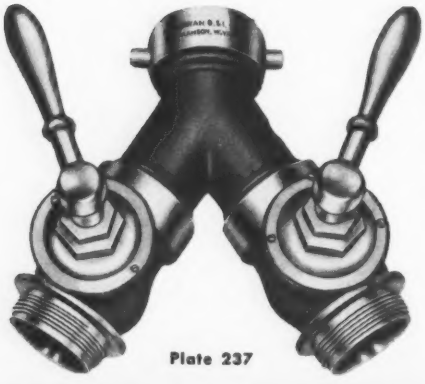

Plate 237

Quarter Turn

Female inlet—2½", 3" or 3½".
Male outlets—2½".

Pin lug or sensible lug swivel. Rough body, painted red with polished bronze or chromium plated trim.

Write for complete, new Catalog

POWHATAN BRASS and IRON WORKS

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Phones 93 & 94 Charles Town, West Virginia

Established 1892

Hose Threads in Ontario

ACCORDING to a report from the office of W. J. Scott, (Fire Marshal in Ontario, Canada) significant progress has been made in fire hose thread standardization in that Province for Civil Defense purposes. For all of Southern Ontario, the thread on 2½-in. fire hose couplings and allied fittings now has been converted to the Canadian Standards Association national standard fire hose thread of 5 threads per inch, with an outside diameter of 3⅛-in. on the male coupling.

For mutual aid operations between Ontario and New York State fire departments, quantities of hose thread adapters are now being distributed to Ontario fire departments in the southern border communities. As stated in the report, in most instances, New York State fire departments along the St. Lawrence River use American National Standard fire hose coupling thread, which is 7½ threads per inch with an outside diameter of 3½-in. on the male coupling. (See NFPA Standard No. 194A — "Standard Threads for Fire Hose Couplings.")

As reported in FIREMEN for January, 1954, in 1951 the Province of Ontario agreed with the Canadian Federal Govermnent to share the cost of standardizing all 2½-in. fire hose couplings and fittings for Civil Defense purposes. Cost of the conversion was estimated at one million dollars, since at that time there were 103 different threads used by fire departments in Ontario. Now, with the conversion completed for Southern Ontario fire departments, proper adapters can be supplied to allow effective operations in mutual aid with New York State fire departments.

In-Service Inspections

THE Syracuse, New York, Fire Department, under the direction of Chief Francis R. Ferren began systematic "in-service" inspections by fire companies on February 1. Each fire company has scheduled dates to participate in the program and inspects designated districts, maintaining contact with Fire Alarm Headquarters with two-way radio. According to the judgment of the officer in command, the more hazardous buildings are inspected by fire companies as a whole, while others receive individual inspections.

THE NEW M·S·A AIR-MASK

. . . available with AIR or OXYGEN

Improved design, and the selective use of materials to fully meet service conditions put the new M.S.A. Air-Mask in a class by itself.

This unit, designed to bring maximum protection and comfort to users in unbreathable atmospheres, supplies air or oxygen in exact accordance with breathing needs. During exhalation, the flow ceases—an economy measure that greatly lengthens service life.

Here are a few of the construction details—

. . . a small attractive demand regulator.

. . . large, easy-operating, all metal handwheels—longer wear.

. . . large, well-defined figures on pressure gauge for easy reading.

. . . the high pressure hose is made of wire-inserted neoprene for increased wear.

. . . the redesigned cylinder valve connects directly to the cylinder and the improved working parts of the valve provide greater serviceability and less maintenance.

. . . the compact cylinder frame fits close to the body.

. . . the nylon harness is easily adjusted and provides maximum strength. It is highly chemical and water-resistant.

. . . the new color scheme is an attractive dark green and yellow. This striking appearance makes it easier to spot men in working areas.

Write today for complete details on this new M.S.A. Air-Mask . . . you'll be taking a step forward in bringing greater efficiency, safety to your fire-fighting operations.

MINE SAFETY APPLIANCES COMPANY
201 North Braddock Avenue, Pittsburgh 8, Pa.
At Your Service: 76 Branch Offices in the United States

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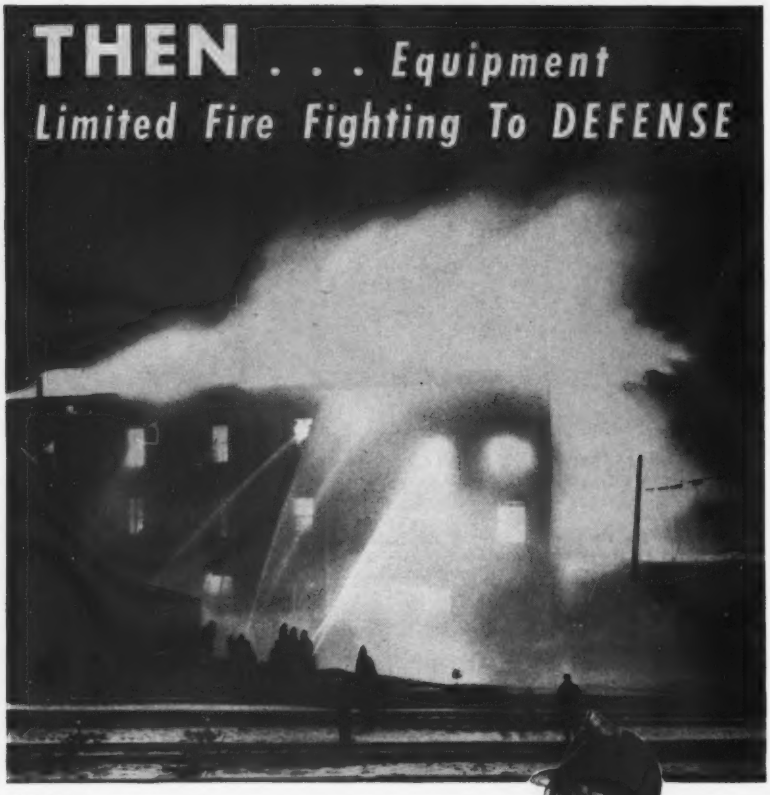
MSA
SAFETY EQUIPMENT HEADQUARTERS

Call the M.S.A. man on your every safety problem . . . his job is to help you



1948 . . . Michigan Firemen had their hands full with this warehouse fire, which, they said, was the worst in several years. The sprawling three-story building was occupied by several industrial concerns. Damage was estimated at $500,000. (Int. News Photo)

NOW . . .
IT'S FIRE ATTACK!

FOR THE BEST *FIRE ATTACK*
GET IN FAST WITH A SCOTT AIR-PAK

YOURS IS A
FIRE ATTACK
DEPARTMENT
IF YOU HAVE
SCOTT AIR-PAKS
ON EVERY
FIRE TRUCK

An editorial in FIRE ENGINEERING (November 1953) stated "This failure to GET IN, to GET AT the fire in its early stages, has been a prime contributor to much of our mounting fire losses . . . and emphasizes the wisdom of adequately equipping the fire force with all the mask and breathing apparatus . . . required in *FIRE ATTACK.*"

Protect your men against smoke with SCOTT AIR-PAKS. Get in Fast for efficient *FIRE ATTACK.* Save more lives and reduce fire losses to a minimum. Write for complete information.

SINCE 1932 Scott THE SAFETY-FOR MEN'S

SAFETY EQUIPMENT DIVISION
SCOTT AVIATION CORP.
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Canada: Safety Supply Co., Toronto — Branches in principal cities
Export: Southern Oxygen Co., 15 West 57th Street, New York 19, N. Y.

Highlights in the Growth of MSA
(*Continued from page 17*)

unit which administers artificial respiration with intermittent positive pressure action, comparable to normal breathing.

Another item with which many fire fighters are familiar is the "Chemox" mask, originally developed by MSA for Navy fire fighting crews. The wearer's breath activitates oxygen-generating chemicals in the cannister, thus providing a pure supply of oxygen for at least 45 minutes. The mask weighs approximately 13½ pounds and like other MSA breathing apparatus, contains a special diaphragm for verbal communication. The company also manufactures the "all-service" mask, for use where sufficient oxygen is present to support life, and the "demand" type mask, which supplies compressed oxygen or pure air from a back-carried cylinder to the facepiece. It affords a 30-minute supply to the wearer.

Scene at an MSA factory showing inspectors packaging the "Pneolator."

The company has printed and distributed pamphlets covering the analyses of gases and other subjects and has also produced a training film for fire fighters called, "You Bet Your Life."

President of the concern now is John T. Ryan, Jr., who succeeded his late father in the position. George H. Deike is now Board Chairman of the firm. Headquarters of the company are at 201 North Braddock Avenue, Pittsburgh 8, Pennsylvania. Adjacent to the main plant is the John T. Ryan Memorial Laboratory where technicians conduct research for improving the company's safety equipment. MSA also has plants at Callery, Pennsylvania; Toronto, Canada; Glasgow, Scotland; and Johannesburg, South Africa; and sales offices and warehouses in many other parts of the world.

Torture tests prove built-in safety of Solar "Mars" gas turbine engines

THREE "LINES OF DEFENSE" assure absolute safety of every Solar "Mars" gas turbine engine. First, the governor holds the engine at rated speed (36,400 rpm in the unit pictured above). Second, overspeed and overtemperature shutdowns take over if the normal control system should fail. Third, *physical limitations in the engine itself* prevent ruinous overspeeds.

This built-in safety was demonstrated in a special Solar torture test of the Mars. The engine was run up with no load and with all speed and temperature controls disconnected. At 50,050 rpm, speed leveled off because of design characteristics of the compressor and fuel system, and no damage to the power plant resulted.

The 60 hp Mars is a remarkable, versatile prime mover. It weighs less than 100 lb and is smaller than a two-foot cube. It is simple, rugged, and runs on a variety of fuels.

Satisfied users are getting thousands of trouble-free hours of service from Mars gas turbine engines. Where will they fit in your business?

Solar Mars Gas Turbine Engine

ENGINEERS WANTED. *Unlimited opportunities in Solar's expanding gas turbine program! Write today, giving your experience, to the address in coupon below.*

SOLAR AIRCRAFT COMPANY — SAN DIEGO, DES MOINES

DESIGNERS, DEVELOPERS AND MANUFACTURERS OF METAL ALLOY PRODUCTS

This is What Solar Offers You

Solar specializes in the manufacture of precision products from alloys and special metals for severe service. Solar's experience since 1927 is unduplicated in this field. Solar skills and facilities range from research, design and development through to mass production. Wherever heat, corrosion or difficult specifications are problems, Solar can help you solve them.

PLANTS. *In San Diego (photo above) and Des Moines. A total of 1,400,000 sq ft of floor space. Approximately 5,000 employees. Annual sales over $65,000,000.*

EQUIPMENT. *Production equipment for all types of metal fabrication—forming, machining, welding, brazing, casting, coating. Extensive laboratory and testing equipment. Facilities for development, prototype, limited or mass production.*

SERVICES. *Research, design, development, tooling and production engineering staffs. Experienced with all alloy steels, stainless alloys, super alloys, and titanium and its alloys. Government source inspection and Solar quality control meet rigid aircraft and commercial standards.*

CONTRACT PRODUCTION

Current orders include aircraft engine and airframe parts, alloy castings, pneumatic ducting, atomic energy components. Customers include some of the most honored names among aircraft and industrial companies in the U.S. and Europe

SPECIAL PRODUCTS

Bellows. *"Sola-Flex"® bellows and expansion joints in many designs from ½ in. up to the world's largest, 28 ft in diameter.*

Gas Turbines. *Solar "Mars" 50 hp engines for auxiliary generator sets, ground carts, portable fire pumps; Solar "Jupiter" 500 hp engines in variable and constant speed models.*

Ceramic Coatings. *"Solaramic"® is the Solar trade mark for a family of coatings that protects metals from heat, corrosion, galling and abrasion.*

Controls. *Complete control systems utilizing the new Solar "Microjet"® principle for control of gas turbines, jet engines and pneumatic devices.*

FURTHER INFORMATION
Your inquiry regarding any Solar product or service will receive prompt attention. Address Solar Aircraft Company
Department A-78
San Diego 12, California

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Flame-Proof
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BROOM
$3.50 each
$40 per dozen
FIBRES COLORED FIRE DEPT. RED
Specifications:
60" overall length (assembled)
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Strong hickory handles
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30"
Shipped in Flat Cartons . . . Easy to Store
Chemically flame-proofed. Approved N.Y.C. Board of Standards and Appeals. Heavy gauge rust-proof metal head and collars. Meets U.S. Forestry and City Fire Dept. specifications.
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566 39th Ave. N.E., Minneapolis, Minn.

MAKING A GOOD JOB OF IT

BY WARREN Y. KIMBALL

Flow in Supply Lines

WHERE hydrant pressures and volumes are satisfactory, many fire departments are able to supply pumpers close to a fire with dual lines from a hydrant. This allows the pump operator to be more responsive to the demands of the nozzles for changes in volume and pressure. However, it may be desirable to know the approximate amount of water that is being supplied in such a layout. This can be determined with a reasonable degree of accuracy by observing the pressure loss between the hydrant and the pumper inlet.

Using our customary guide formula for changing friction loss (FL) to gpm flow we move the decimal point one place to the right and add 100 to get the gpm in a single 2½-in. lines. (Example: 15.0 FL equals 250 gpm flow.) If we have two 2½-in. supply lines we would have twice this flow or 500 gpm.

Sometimes the hydrant pressure at a given flow is not exactly known but a good fire department usually has flow data available from which this may be estimated. If not, where the hydrant is on a good grid and supplied from several directions the difference in pressure from the static to flow pressures on the pump compound gage may be used with fair accuracy, making some allowance for the fact that part of the pressure drop will be in the main and not in the hose.

Let's take a particular example where a pumper is supplied by two 250-ft. hydrant lines of 2½-in. hose and where the pressure loss from hydrant to pump is approximately 25 lbs. Thus by dividing 250 by 25 we get the loss per 1000 ft. of hose, which is 10 lbs. We move the decimal point one place to the right and add 100 (100+100) giving us 200 gpm per line, or 400 gpm flowing.

Now we may have a slightly more complex problem when a fire department uses both 2½-in. and 3-in. supply lines. As 3-in. hose carries about 1.66 times as much water at a given pressure as 2½-in. hose, the solution is quickly found. Assuming that we have one supply line of each size, we find the flow in the 2½-in. hose as before and multiply the resulting flow by 2.6 (1 plus 1.66; the last 6 is customarily dropped off as insignificant) and we have the flow in the two lines of unequal size.

The relationship of the flows and friction loss in 2½-in. and 3-in. hose can readily be checked by looking at published friction loss tables. For example, 240 gpm in 2½-in. hose and 400 gpm in 3-in. hose both cause 14.1 lbs. pressure loss per 100 ft. The 400 gpm is 1.66 times the flow of the 2½-in. hose. The total flow from the two lines is roughly equivalent to 2.6 times the flow in a single 2½-in. line.

Let's take an actual case (below) where 350-ft. lines of 2½-in. and 3-in. hose show a pressure loss of 46 lbs. between hydrant and pump. How much water is flowing?

46÷3.5 gives us 13.2 lbs. FL per 100 ft. We move the decimal point and add 100 to get 232 gpm in the 2½-in. line. Multiply by 2.6 we have approximately 603 gpm. The

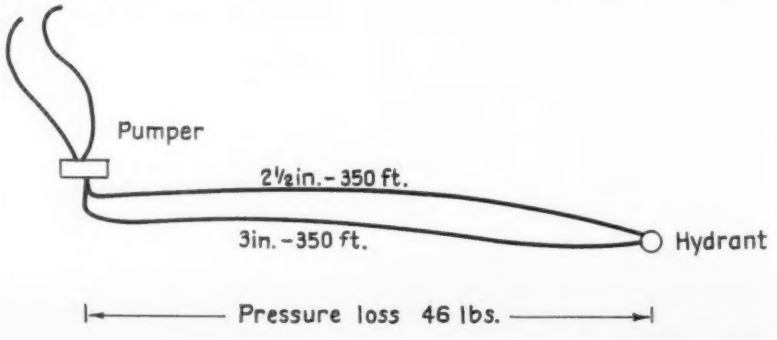


figure would have been 613 gpm if 232 was multiplied by 2.66 but either answer is sufficiently accurate for fireground calculations needed to check pump and nozzle discharge without more accurate Pitot or other gage readings.

Our result may be back-checked by using the well-known formula FL (friction loss) $= 2Q^2 + Q \div 6.1$ with Q equal to the quantity in gpm divided by 100, and 6.1 being the factor for changing friction loss in dual 2½- and 3-in. lines to a single line of 2½-in. hose.

(Example: $2 \times \left(\frac{613}{100} \times \frac{613}{100}\right) + \frac{613}{100} =$ $81.28 \div 6.1 = 13.2$ FL which is the same FL determined above.)

Persistence Rewarded

RECENTLY the Harrison Township, Michigan, Fire Department, headed by Chief Nicholas Barsheef, received a reward for unusual duty. Several gallons of fuel oil somehow were mixed with a large quantity of gasoline and the mixture was distributed as fuel oil in the community. Assisted by thirty men from the major gasoline distributing company, Chief Barsheef, his assistant, and 15 volunteer members of the fire department began a house-to-house search. It was 2 A.M. on the following morning before the last of the mixture was located and removed, without a single dangerous fire incident occuring.

The distributing company then offered to repay the fire fighters for their efforts. What did they want? "Two-way radio", said the chief. The department got it.

Occupancy Fire Records

THE eleventh in a series of NFPA occupancy fire records is now available. Covering "Truck Terminals," this 8-page bulletin reports 39 fires in such terminals, lists the recurring factors which influenced fire spread, contains an analysis of the causes of the fires, and lists the NFPA standards which are applicable to truck terminals.

The ten previous occupancy fire records may now be obtained in complete sets for $4.00 per set. Individual fire records, listed at right, cost 50 cents each, with generous discounts allowed for quantity purchases.

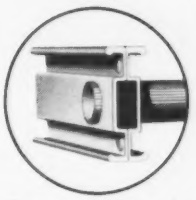
NEW! for short wheelbase PUMPER TRUCKS

ALCO-LITE aluminum

Pumper Extension Ladders

Fits most brackets designed for wood ladders.

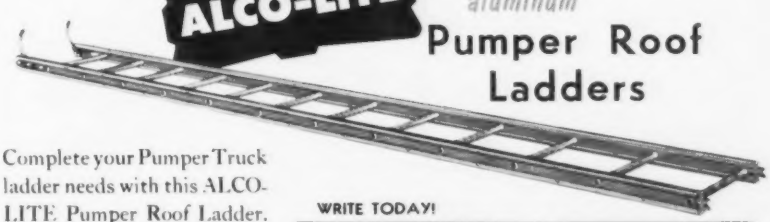
Here's the ideal replacement for your outmoded wood ladders. Built of high tensile strength aluminum alloy, these ALCO-LITE Pumper Truck Extension Ladders will stand up under the severest use. They are built with exclusive ALCO-LITE know how. They are easy to lift, easy to use, and require almost no maintenance. They can't rust, rot, warp or burn.



Corrugated 1" heavy aluminum rungs are securely attached to the side channels by means of exclusive ALCO-LITE expansion bushing construction.

ALCO-LITE aluminum

Pumper Roof Ladders



Complete your Pumper Truck ladder needs with this ALCO-LITE Pumper Roof Ladder. It's the perfect companion to the PEL Ladder. The nested thickness of these two ladders is 6⅞". It is equipped with folding steel hooks. A perfect pair for your truck.

WRITE TODAY!

ALUMINUM LADDER COMPANY
Dept. S
Worthington, Pa.

Please send me further information about ALCO-LITE PEL, PRL, and other aluminum fire ladders.

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ADDRESS _____

CITY _____ STATE _____

ORDER FORM

National Fire Protection Association F3-5
60 Batterymarch Street, Boston 10, Massachusetts

Gentlemen: Please send me the following:

..... Set(s) of the first 10 occupancy fire records at $4.00 per set
..... Individual Occupancy Fire Records at 50 cents each

Quantity		Quantity	
.....	Garages	.....	Department Stores
.....	Supermarkets	.....	College Dormitories, Fraternities, Sororities
.....	Foundries	.....	Food Canneries
.....	Oil Piers	.....	Electric Generating Plants
.....	Grocery Warehouses	.....	Truck Terminals
.....	Farm Property		

Name .....

Address .....

City ..... State .....

☐ Check for ..... enclosed ☐ Please send bill

WHEN YOU BUY WITH YOUR CONSCIENCE YOU'LL

Bi-Lateral

Cheap hose is expensive in the long run—in lives as well as money! Bi-Lateral has been famous for quality since 1907—and we don't intend to endanger that reputation—or lives—by making "cheaper" hose to meet a cheaper price.

Cheap hose must be replaced in seven years—Bi-Lateral will give you twenty years of safe service.

We believe that safety and long run economy are more important than price alone in the purchase of fire hose. That's why we say, "when you buy with your conscience, you'll Bi-Lateral!"

FIRST AGAIN!

BI-LATERAL was *first* to construct hose with the bi-lateral non-creasing feature for longer life, *lower cost* in the long run and true safety. Folds flatter, handles more easily!

BI-LATERAL was *first* to change the pin-lugs to rocker lugs for safer, easier-handling couplings, lower-cost hose coupling maintenance.

BI-LATERAL was *first* to offer a real detergent, BI-KLEEN—made especially for fire-hose cleaning exclusively for Bi-Lateral by the Essentials Chemical Co. Oil and dirt rot hose—*Bi-Kleen is safe, non-toxic,* keeps hose "inspection-white," keeps it cleaner, safer . . . good for fire-house and apparatus, too!

AND BI-LATERAL was *first* to furnish free fire hose record cards to fire departments. They are *still* available—send for a supply!

Bi-Lateral

20 N. WACKER DRIVE, CHICAGO 6, ILLINOIS

Membership Report

Of the 30,000 copies of FIREMEN which are mailed each month a small percentage is returned to the NFPA executive office because of incorrect mailing address. Generally, it is found that the person for whom the magazine is intended has moved, but in some cases the magazine is returned because the proper postal district is not included in the mailing address. To avoid delay in receiving the magazine, readers are requested to notify the NFPA whenever their mailing address is changed.

NFPA Welcomes:

The following fire chiefs and fire departments which have recently joined the Association. Current NFPA Fire Department Membership totals 2,117 fire departments and 25,407 men.

California: Chief Lyle Griffin, Crescent Fire Protection District, Crescent City.

Connecticut: Chief J. MacDonnell, New Fairfield Volunteer Fire Company "B", Brookfield; Chief William B. Confrey, Norwich Fire Department, Norwich.

Indiana: Chief Robert Heron, Madison Township Fire Department, Tipton.

Iowa: Maquoketa Fire Department, Maquoketa; Sioux City Fire Department, Sioux City.

Michigan: Livonia Fire Department Fire Stations No. 2 and No. 3, Livonia.

Mississippi: Chief J. C. Evans, Greenwood Fire Department, Greenwood.

New Hampshire: Littleton Fire Department, Littleton.

New York: Henrietta Fire Company No. 1, Henrietta; Chief D. T. Schweikert, Middle Village.

Nova Scotia: Chief J. Douglas Trefry, Yarmouth.

Ohio: Chief Delbert Garland, Mineral Ridge Volunteer Fire Department, Mineral Ridge.

Ontario: Parry Sound Fire Department, Parry Sound; Chief P. Adshead, Weller Park Volunteer Fire Brigade, Weller Park.

Pennsylvania: Chief George Gauthier, Perry Hi-Way Volunteer Hose Company, Erie; Chief Ira C. Richards, Indiana Fire Association, Indiana.

South Carolina: Easley Fire Department, Easley; Captain K. T. Trousdell, Myrtle Beach Fire Department, Myrtle Beach.

Virginia: Chief L. A. Clements, Courtland Volunteer Fire Department, Courtland.

West Virginia: Chief John W. Gallagher, Huntingdon Fire Department, Huntingdon.

Wisconsin: Kenosha Fire Department, Kenosha; Chief Albert J. Gee, Superior Fire Department, Superior.

Wyoming: Hulett Fire Department, Hulett.

New Training Texts . . .

on New Fire Fighting Techniques . . .

with Many New Illustrations!

Industrial Fire Brigades Training Manual

The 3rd (1954) edition of the popular reference manual for training industrial fire brigades.

8½ x 11 inches
160 pages
385 illustrations

$3.25
per copy

Quantity prices on orders to one address:
25 or more copies
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This brand new edition is chock-full of new and vital information for every person concerned with the training of industrial fire brigade members. It was prepared under the sponsorship of the NFPA Committee on Firemen's Training and has been reviewed by members of the NFPA Industrial Committee.

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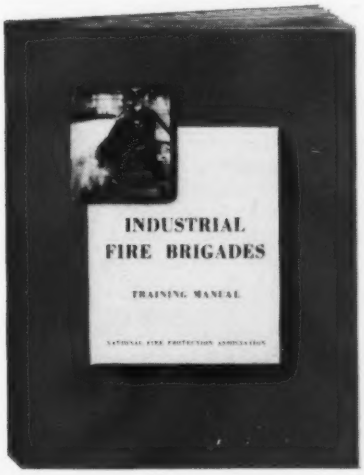

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Maintenance men and mechanics will find the new 200-page book "How to Use Portable Power Tools" a valuable manual. Contains step-by-step instructions, tricks of the trades and 180 instructive photos. Priced at $1.50 from *Porter-Cable Co.*, 55 Exchange St., Syracuse 8, N. Y. . . . The Boston Woven Hose line of municipal fire hose, chemical and booster hose, fire engine suction hose and fittings will now be handled in Northeastern New Jersey by *Richard M. Parkhurst*, 510 Madison Ave., Dunellan, New Jersey. . . . To make removal of hand fire extinguisher heads easy, *Central Scientific Equipment Co.*, Philadelphia 25, Pa., has introduced the "Extinguisher Servicing Device," consisting of a stainless steel impact wrench and adjustable aluminum gripper base. Free literature is available on request to supplier.

You can keep a 150 or 300 gallon water supply at danger points this summer with the Harodike portable canvas water tank. Write to *Harodikes Inc.*, North Dighton, Mass. . . . Ask for material samples from *Midwestern Safety Mfg. Co.*, Mackinaw, Illinois, before you place your next order for coats. . . . Need folding tables or chairs for your stations? Get the latest catalog and prices from *The Munroe Co.*, 277 Church St., Colfax, Iowa. . . . For portable electric power plants for lights, saws, drills and suction fans, call on *United States Motors Corp.*, 244 Nebraska St., Oshkosh, Wisconsin.

For fire, air raid, rescue squad and ambulance alarm signals, get the story on "electro-phonic" air signals direct from *Clark Cooper Co., Inc.*, Market St., Palmyra, N. J. . . . 12-volt conversion kits are available for all *Link Radio Corp.* 2-way mobile radio equipment, previously produced for 6-volt operation. Link service department will do the conversion or kits will be supplied at moderate cost, complete with circuit diagrams and instructions. . . . National Foam System, Inc., announces a new formulation of 3 percent "Aer-O-Foam" liquid that maintains mobility down to –20 degrees F. This new patented liquid combines desirable features of both 3 percent regular and 6 percent cold foam liquids and is Underwriters' Laboratories listed for use with all "approved" Aer-O-Foam devices. Get the facts today from *National Foam System, Inc.*, West Chester, Pa.

A newly designed mask for fire fighters, using oxygen or air, is announced by *Mine Safety Appliances Co.*, 201 North Braddock Ave., Pittsburgh 8, Pa. Write direct for Bulletin No. 0105-5. . . A new, portable 2-way radio unit, called "Pak-Fone," for 50 or 140 MC Bands, may be operated as a central control station when powered by 115 volts A.C., a mobile unit on auto battery power, or as a portable station using self-contained batteries. Complete information may be obtained from manufacturer: *Industrial Radio Corp.*, 428 N. Parkside Ave., Chicago 44, Illinois. . . . A new heavy-duty self-contained portable power saw, the "Milwaukee Sawzall," is now on the market. The complete unit measures only 14½ inches long and weighs 6¾ pounds and will cut through wood, galvanized sheet, other metals, wire, nails, formica, masonite and numerous other materials. For complete information write to *Milwaukee Electric Tool Corp.*, 5354 W. State St., Milwaukee 8, Wisc. . . .

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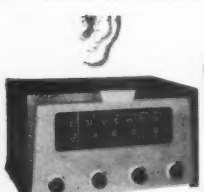

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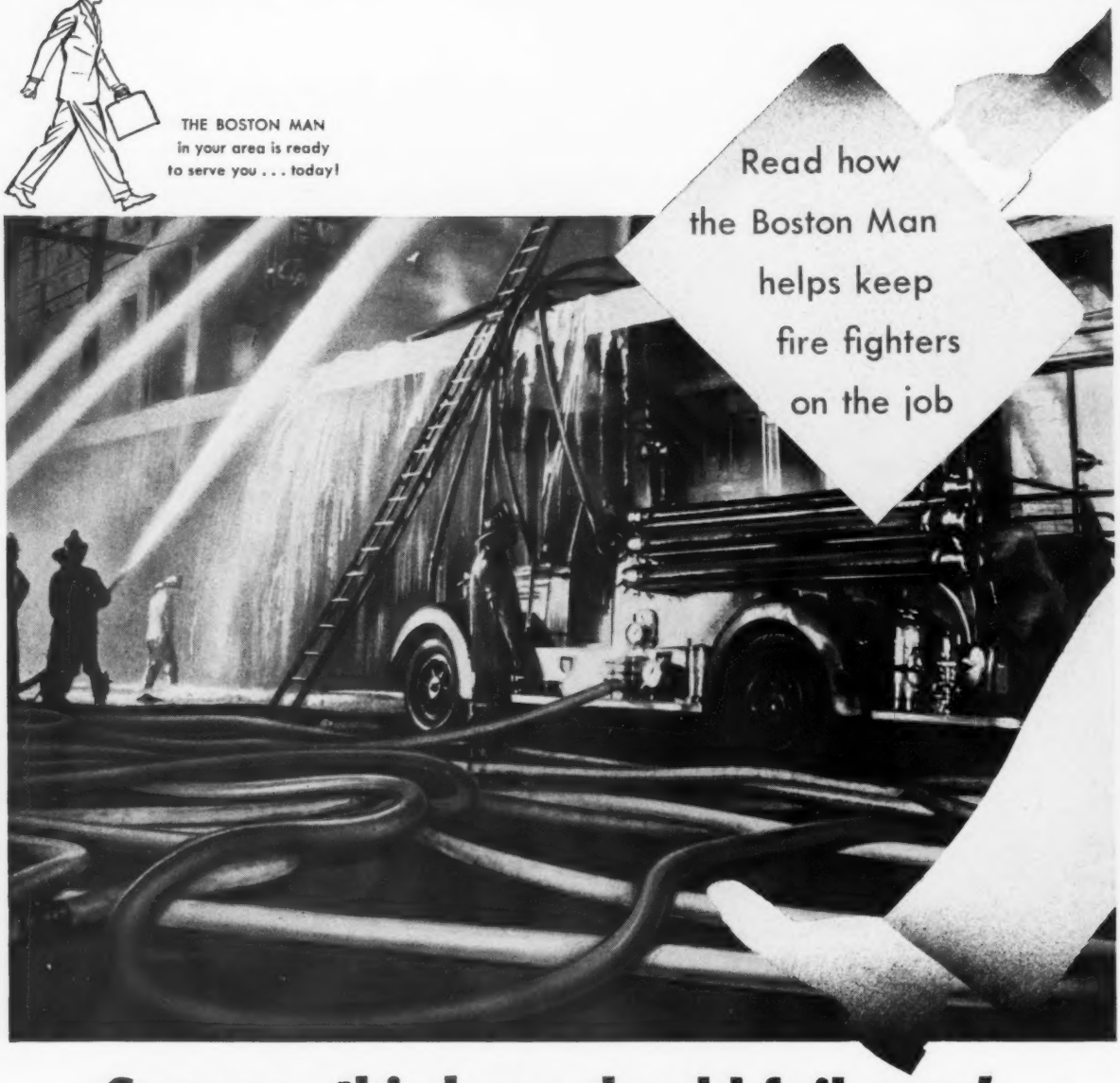

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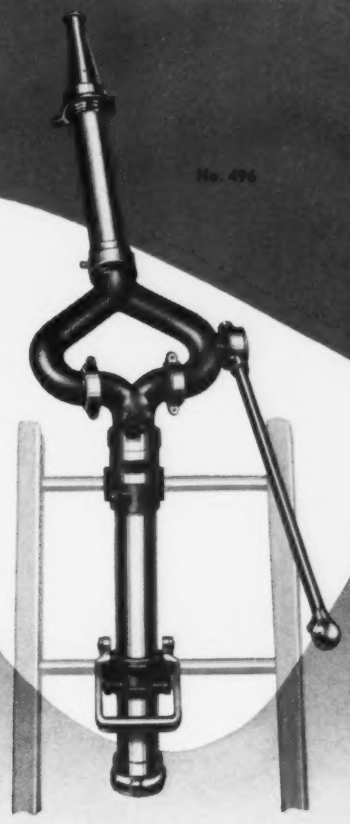

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Note that special attention is given to comic books and inspection blanks to help you enlist the aid of school children in your community. Special inspection forms are also available for industrial plants and store owners.

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